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ESSAYS, MONOGRAPHS, AND CASES.

Notes of the Chemical and Medical Testimony in the late Remarkable Trial for Poisoning by Arsenic, in New York City, known as the Stephens Case. By L. J. B.

After a protracted trial of nearly three weeks' duration, the jury in the case of "The People *vs.* James Stephens" for the murder of his wife by poison, returned on Saturday morning, March 26th, a verdict of "Guilty." It would be foreign to the purpose of this Journal to give our reasons for believing this verdict to be a righteous one, and fully sustained by the evidence on which its rendering was based, or to follow through all its tortuous windings, the unusual, and somewhat erratic course of the trial, to note the well-arranged argument and masterly analysis of testimony by the prosecution, or the ingenious and artful strategies of the defence; still more foreign, to bring to the eyes of our readers the mass of revolting detail which was unfortunately, but perhaps unavoidably, elicited from witnesses for both sides of the case. Our only object at present is to draw attention to the medical and chemical testimony in the case, which, we believe, is the most complete, satisfactory, and conclusive ever brought before a jury in this or any other country.

The facts of the case, as far as we have to deal with them, are, according to the evidence for the prosecution, partly corroborated by that for the defence, as follows:

The prisoner's wife, a robust woman, weighing 160 lbs., 46 years of age, enjoying the usual degree of health, began, about three weeks before her death, to feel indisposed, complaining of a sensation of heat in the "chest." A physician called in at that time discovered no indication of disease sufficient to make treatment necessary, and told her that she would be well in two or three days.

The symptoms, however, steadily increased in violence, the sense of burning being located at the epigastrium, and vomiting soon setting in. The vomiting always followed the ingestion of food or liquid after a very short interval, five to fifteen minutes; and in from ten to twelve days from the visit of the first physician a second was called in. He testifies to finding her at that time suffering under the symptoms of a severe gastritis, with considerable prostration, and an indisposition to talk. He considered (in answer to questions from counsel) that it was not a case of cholera, of cholera morbus, or of bilious colic.

His prescriptions at this time were the following: nitrate of potassa half a drachm, compound powder of ipecac. twelve grains, to be divided into six powders; sulphate of quinine twenty grains, ox-gall one drachm—make twenty pills; a plaster of cantharides to be applied to the epigastrium, and the resulting blister to be dressed with an ointment composed of simple cerate half an ounce, sulphate of morphia three grains; and sulphate of morphia one grain, white sugar ten grains, to be divided into four powders. These prescriptions are mentioned in the order in which they were given on three consecutive days, the 19th, 20th, and 21st of September, 1859.

We introduce these prescriptions in full, as we wish to comment on the somewhat remarkable testimony of the medical witnesses with regard to them, when we reach that part of the subject. The action of the blister was to ameliorate for a short time the violence of the vomiting, which, however, soon returned with redoubled violence. The matter vomited, at first a yellowish fluid, gradually became green, and towards the close of the case assumed a dark color, bordering on brown. It contained spots of blood, (which the prisoner suggested to one of the witnesses, at the time, might be "pieces of her liver,") and a tough ropy mucus, which could be lifted out of the vessel on a stick, to which it adhered in a string.

The burning pain now became agonizing, being described by the patient as feeling like a "ball of fire," generally in the stomach, sometimes seeming to rise in the throat. She suffered from a constant and burning thirst, drinking with avidity all fluids that were offered her, even though aware of the distressing vomiting which would inevitably

follow their prehension. The list of these drinks alone is enough to indicate this fact: water, tea, coffee, milk and water, buttermilk, lager beer, lemonade, and brandy are mentioned. During the last week of her illness the patient complained of coldness of the extremities, although her face was flushed. Its expression is described as having been languid and anxious, with a peculiar sharpness of the eye during the last day or two. The countenance "changed," and the eyes became sunken. A hesitancy in answering questions was noticed. The prostration steadily increased. In the course of the last week, partial anæsthesia occurred in the hands, with slight impairment of voluntary motive power, and convulsive tossings of the arms; the feet and legs became slightly œdematous, the lips were swollen; the urine was scanty and high-colored, and irritating to the urethra. Diarrhœa set in about thirty hours before death, the evacuations being dark-colored and offensive. The respiration, which had before been hurried, became now difficult and labored. The mind, which had been entirely unaffected, yielded to a species of stupor, interrupted once by a wild scream, on being raised, and the scene closed with complete collapse. It is alleged by a credible witness that within a space of ten hours during the last day, a quantity of laudanum, amounting to probably *three ounces*, with a *pint* of brandy, was administered by the prisoner to the deceased.

Suspicions, if any were then entertained, were not expressed at the time, and the woman was quietly interred in Greenwood Cemetery.

The body was committed to the earth on the 23d of September, and a year and a day after, on the 24th of September, 1858, was exhumed by the order of Coroner Connery, and in his presence, and identified by relatives. It was removed with great care to the dead-house at Bellevue Hospital, and there examined by Dr. James R. Wood, in the presence of Prof. Doremus, his assistant Dr. Zenker, Dr. Woodward, Dr. Gouley, the curator of the museum, and several of the Hospital Staff. Dr. Wood's statement of the post-mortem appearances is so interesting that we give it entire. He testifies: "I caused the body to be removed from the coffin by an assistant in the hospital; it was removed without dismemberment; I examined the anterior surface of the body, for the purpose of ascertaining its condition; I found the skin of a dirty-yellow color, in a very remarkable state of preservation; it had not shrunk any, and was plump and full; the face, sides of the head, with the anterior portion of the skull, were in an advanced state of decomposition; then I made a posterior examination, by turning the body over; with the exception of the scalp, it presented the same appearances the anterior did; the scalp was decomposed; I then made

a dissection of the anterior portion of the body, from the sternum to the pubis, in the mesial line; this brought into view the anterior portion of the liver, the stomach, the colon, and the omentum; the liver, stomach, and colon were in a remarkable state of preservation; the stomach and omentum were well preserved, and loaded with fat; the other viscera of the abdomen were examined before I commenced to remove them; they were also apparently healthy and well preserved; I then proceeded to remove the viscera of the abdomen—first by applying a ligature round the cardiac orifice of the stomach, and another round the pyloric orifice; this was handed to Dr. Doremus, and placed in a vessel prepared for the purpose; I then removed a portion of the intestines, which were also placed in a vessel prepared by Dr. Doremus; the intestines were examined, and their internal lining were found in a remarkable state of preservation, and but little fluid contained in their cavity; the remaining portions of the intestines, the uterus and its appendages, were given to Dr. Doremus for examination; the cavity of the peritoneum or belly contained nothing, except two or three ounces of oily matter, which had percolated through the tissues, which were loaded with fat; this examination was made without opening into the cavity of the thorax, which was next opened; we found the viscera therein contained wonderfully well preserved; the lungs and heart were remarkably well preserved; the other tissues, with the pleuræ, were remarkably dry; not a particle of moisture was discovered on the surface; I then proceeded to examine the head and face, to find if there was a bruise which was said to have existed at the time of death, but decomposition had so far advanced that it was impossible to note anything; the brain was in an advanced state of decomposition, melting upon pressure of the hand or scalpel; a portion of it was given to Dr. Doremus; I examined the muscular tissues of the body; they had not lost their coloring matter, and were still red; as well preserved as many bodies that I have seen in the dissecting-rooms of country colleges; the shroud, the napkin placed about the nates and vulva, were also handed to Dr. Doremus; some cotton found in the mouth was also given to Dr. Doremus for examination; I examined the interior of the stomach at Dr. Doremus' house, after he had removed its contents; the mucous membrane was hard, much harder than natural; there was no redness of the stomach; the veins were large, as if they were congested; the contents of the stomach were unusually small; this smallness might be accounted for by the contents having been ejected before death, or from the patient not having taken any substance into the stomach for a long time before death; there was a peculiar odor

from the body; not an odor from decomposition; I cannot account for it in any other way; I never smelt anything like it before."

The remarkable preservation of the body, or at least those parts of it more immediately contiguous to the alimentary canal, cannot fail to claim attention, as well as the peculiar dryness of the pleural cavity. The testimony of Dr. Doremus, with regard to the chemical examination of the body, was distinguished for its clearness and precision, and embodied the details of the most careful, laborious, and scientific investigation of the kind ever made, we say with confidence, in this country, and perhaps in the world. We certainly have never met in any foreign journal, and we have given the subject some little attention, the details of an analysis which will compare with it for nicety and completeness. To give the full account of all the processes through which various portions of the body were carried would occupy too much time and space, interesting and instructive as they are. We shall, therefore, confine ourselves to specimen extracts from his report to the Coroner's jury. We may premise that not only were the jars, in which the viscera were removed to Dr. Doremus' laboratory, new and thoroughly cleaned, but that every piece of chemical apparatus, crucibles, retort, receiver, gas-burner even, was also newly purchased for the purpose, and most thoroughly tested. This was also of course the case with the chemicals themselves, salts, acids, &c., and in some cases they were even manufactured on the spot in order to insure perfect purity.

A great portion of the investigation, too, was carried on in a small laboratory fitted up for the purpose, entirely separate, and at a distance from any other laboratory, where no suspicion of the previous presence of the slightest trace of the suspected mineral could exist. The doors of his room, as well as the windows, were kept under seal, and the keys retained by Professor Doremus and his assistant, no one else being allowed access. In short, no measure was omitted which could conduce in any way to the perfect justice and truth of the results obtained, or which could inspire confidence in them in intelligent minds. As a simple instance, the hydrogen gas which was to be used in one of the examinations by Marsh's test, was passed through not a simple straight-heated tube, as is usual, but through a coil of heated tube several feet in length; and not for a period of half an hour, or even two or three hours, which is generally the maximum, but for upward of one hundred and forty hours, before introducing the suspected liquid. And this, after the various chemicals singly had been carefully tested and proven pure. Much of the zinc that was used was obtained from

the New Jersey mines, which are known to contain no arsenical ores. The Professor's testimony, clear and explicit in itself, was greatly elucidated by admirable drawings of the apparatus used, (executed by Plunkett,) and by specimens of the different stains obtained presented in sections of the tubes in which they first formed, in watch-glasses, &c.; such specimen having opposite to it, on the card to which they were all attached, a record of the experiment of which it represented the result; thus affording to the jury an ocular demonstration of the existence of the poison in considerable quantities, and in every tissue of the body, in a conclusive manner that words alone could not have done.

But to proceed with the analysis. "The stomach, which was in a remarkable state of preservation, was found to contain a small quantity (not more than a tea-spoon full) of a substance resembling coffee-grounds, which on analysis yielded no indication of opium, or of any metallic poison."

It is on evidence that when the body was placed upon its side after death, a large quantity of dark fluid poured from the mouth on to the floor on which it was lying. This will account to a considerable extent for the emptiness of that organ.

"The small intestines, which were also unusually well preserved, were nearly empty, but lined with a thin layer of a yellowish pasty material, which, after previous preparation, was examined with an apparatus for generating hydrogen gas, and decomposing by heat, compounds with which it might be associated, (a modification of that known as Marsh's test.)

"Although this was employed beyond the time usually recommended, it only afforded a faint stain of an orange tint, with a metallic lustre, resembling one of the sulphurets of arsenic.

"The large intestines were found slightly reddened in parts of the colon and of the rectum, and contained a small quantity of a brown pasty substance, which, on examination by the hydrogen apparatus, yielded an orange-colored stain, like the preceding.

"Several portions of the liver, of the kidneys, and of the lungs, were prepared by different chemical processes for the aforesaid apparatus, from which stains of yellow and brownish-yellow hues were procured."

As the deponent had never before met with similar results by this process, and was unable to learn that similar results had been obtained by others, and suspecting that the presence of sulphuretted hydrogen from the putrefying materials under examination, by its de-

composition at a red heat, in connection with the decomposing arsenicated hydrogen, produced the yellow sulphuret of arsenic, the experiment was tried at deponent's laboratory, at the Medical College, of passing these gases at the same time through a glass tube heated to redness. Stains were produced identical in appearance with those obtained from the viscera before referred to. One of the yellow stains from the liver was then tested, by passing a gentle stream of pure and dry oxygen gas through the tube containing it. On applying heat, the stain volatilized, and was gradually urged through a coil of glass tubing a foot and a half in length, heated to redness. As anticipated, the sulphur was converted into sulphurous acid gas, and the arsenic into arsenious acid. The latter was deposited as a faint white stain on the cool glass, beyond the coil. It was dissolved in a few drops of distilled warm water, and found to respond to the chemical tests for arsenic.

"Another portion of the liver was submitted to a modification of the other chemical processes yielding yellow stains. One of these was tested in the manner described, and afforded faint traces of arsenic. Eight ounces of muscular tissue were dissolved in hydrochloric acid, with the addition of a small amount of chlorate of potassa, and then treated by chlorine gas and by sulphurous acid gas, which, when tested by the hydrogen apparatus, produced the yellow stain, with iridescent play of colors. Owing to the peculiar nature of these stains, and to their faintness, which permitted only a partial proof of their arsenical character to be exhibited, deponent deemed it essential to submit the entire body of the deceased to chemical examination."

A word or two of explanation is here necessary. Subsequently to making this report to the Coroner's jury, but before giving his evidence on the trial, Professor D. discovered in a standard work on the subject an exact description of these yellowish stains with an iridescent display of colors, as resulting from the presence of sulphuretted hydrogen in such circumstances and from such causes.*

An attempt was made by the defence, in their over-anxiety to save the life of the prisoner, to prove that, at this stage of the examination, Professor Doremus himself was not convinced of the existence of arsenic in the body. The most cursory reading of the above testimony will show that such an idea is simply absurd, when it is distinctly stated that sulphuret of arsenic and arsenious acid were

* A foot-note in Guy's "Forensic Medicine."

obtained, visibly to the eye, and that, in solution, the latter responded to all the liquid tests.

The ground on which this ridiculous charge was based was this: Great and uncalled-for complaint was made by certain interested parties—among them, we think, the counsel for the defence—because so long a time was occupied by Professor D. in making his analysis. In apologizing, with a courtesy which was scarcely reciprocated, and which subsequent events have shown was entirely undeserved, for this apparent delay, he stated that he "would have been unable at this stage of the analysis to *present* the *Coroner* and *jury* with testimony of a positive character"—*positive*, that is, to a jury of twelve unscientific men, who are not in the habit of dealing with such delicate results as are afforded by the minute elaborations of the retort and the crucible, which may nevertheless be perfectly satisfactory to the expert, who is familiar with them, and appreciates their full force at a glance—men who must have something tangible presented to their senses, in order to convince their minds. He was fully assured, from the developments afforded by the small portion of the remains which he had already examined, that a quantitative analysis of the entire body would enable him to present to these men a *weighable* amount of the deadly mineral, on the presence or absence of which their verdict was, in a great measure, to turn; and he was unwilling, and properly so, that, where so sacred a thing as human justice was at stake, any effort should be spared upon his part which could tend to produce in their minds the firm conviction which already existed in his own—viz., that the body of the deceased woman did contain arsenic in poisonous quantities.

In pursuance, then, of this intention—namely, of presenting to the jury *weighable* amounts of arsenic obtained from the body, and of giving them an approximate idea of the probable amount of the mineral which it contained—he proceeded to examine the whole body.

"With the assistance of Drs. Zenker and B. L. Budd, the soft tissues, which were in a remarkable state of preservation, were dissected from the skeleton, and examined by several different chemical processes."

It will not be less interesting and instructive to the medical profession than it was to the jury to hear the details of some of these processes, as showing to what a degree of refinement this department of the science of toxicology has now arrived; and the fact that it was only twenty years ago—in 1839—that Orfila first announced to the world that he had been able to obtain indications of the existence,

and consequent previous introduction, of arsenic in the tissues, as well as in the contents of the alimentary canal, indicates that, in the grand march of the sciences, it is not lagging behind.

PROCESS No. 1.

"About ten pounds of muscular and adipose tissue from the remains of the deceased were placed in a new, clean, and capacious porcelain crucible, acted upon by strong sulphuric acid and heat, for thirty-three hours, the mass being stirred every few moments with a porcelain spatula. When it had assumed a pasty condition, one-third was removed for a second chemical operation. The remainder was heated to dryness. During the last twelve hours, deponent and his assistant alternated in incessant stirring of the mass. The whole operation was most nauseating and disgusting. The black powder (resulting) was heated over a water-bath, with strong nitric and hydrochloric acids, to dryness; then with hot distilled water, and filtered; the filtered liquid was then introduced into the hydrogen apparatus, and afforded the black metallic-looking stains contained in tubes marked vi. and vii."

PROCESS No. 2.

"Four pounds, four ounces of muscular and adipose tissue from the body of the deceased, cut in fine pieces, were placed in a new and clean glass retort; and, to avoid loss, a receiver was adapted, with a bent tube, passing into a beaker-glass of pure water. Pure hydrochloric acid was added, and heat from a gas furnace applied for fifteen hours. About eight ounces of a light pink-colored liquid distilled over into the receiver, which was reserved for examination. One-half of the contents of the retort was treated with chlorine and sulphurous acid gases, evaporated, and tested in the hydrogen apparatus for five hours—producing a faint dark metallic stain. The portion remaining in the retort was heated again, and chlorate of potassa was gradually, in small quantities, added, till a clear orange-colored liquid was obtained; this was filtered, and pure, washed sulphurous acid gas passed through it for three hours, until it was completely saturated.

"It was warmed over a water-bath, to expel the excess of sulphurous acid. Pure, washed sulphuretted hydrogen gas was passed through the liquid for sixteen hours, producing a yellow precipitate; that was allowed to subside during eighteen hours.

"The greater part of the liquid was decanted, and the precipitate

poured on a small filter, (of Swedish paper,) and repeatedly washed with warm distilled water.

"The precipitate and filter were dried in a warm bath, placed in a porcelain crucible, and digested with pure nitric acid.

"The acid was neutralized with pure carbonate of soda, and evaporated to dryness in a water-bath.

"The contents of the crucible were fused over a gas furnace till the organic matter was burnt, and a clear, colorless liquid obtained.

"The nitric and nitrous acids were expelled by pure sulphuric acid, and the remaining salts dissolved in a small quantity of distilled water.

"An apparatus for generating pure and dry hydrogen gas was prepared, and attached to a glass tube three feet in length, so coiled that two feet of it were heated red hot over a gas furnace.

"In other cases, *two or more of these coils were united*, thus enabling the operator to increase the heated surface *ad libitum;* thereby insuring the complete decomposition of any of the compounds of hydrogen.

"To test the purity of the hydrogen, it was passed through a red-hot coil for an hour and a half. No stain was produced upon the cool portion of the tube beyond where the heat was applied.

"The zinc and the sulphuric acid thus employed were known to be pure; (they had been previously and repeatedly examined for several hours.)

"Almost immediately after the introduction of the suspected liquid obtained from the muscles as described, and which was reduced to half an ounce, a dark stain, with metallic lustre, resembling arsenic, appeared beyond the heated glass coil; this was allowed to accumulate for two hours.

"On introducing a bubble or two of air through the hydrogen apparatus, a slight oxydation of the metal occurred, and the characteristic garlic odor of burning arsenic was distinctly recognized.

"The hydrogen apparatus was removed, and the arrangement for passing pure and dry oxygen gas was applied at the opposite end of the glass tube.

"The coiled portion was continued at a red heat, lest, on cooling, it might fracture.

"A gentle stream of oxygen was passed through the tube, and the greater portion of the dark stain was gradually volatilized by the heat from a spirit-lamp.

"About an eighth of the metallic stain was reserved for exhibition in a tube.

"The vaporized arsenic mingling with the oxygen at a red heat, as it was urged through the coil, was converted into arsenious acid, which appeared as a white deposit on the cool tube, beyond the heated coil.

"The tube and stain were removed, and heated with a few drops of distilled water, in a new and clean test tube.

"The white deposit dissolved immediately."

The solution thus obtained was subjected to all the liquid tests, and responded to them promptly and conclusively. It is unnecessary to repeat them here.

Other portions of the viscera and tissues, muscular, osseous, tegumentary, &c., were subjected to different modifications of this and to other processes, which we cannot detail here. Suffice it to say, that they corroborated fully the results obtained by this, and that a quantitative analysis of the heart, a portion of the lungs, liver, and kidneys, with the small and large intestines, the spleen, pancreas, omentum, bladder, and uterus, weighing together 7 lbs., 3 oz., gave as a result 0.185 grains, nearly the fifth of a grain of arsenious acid; which, when the necessarily large deduction for loss is made, shows not an infinitesimal quantity, a mere suspicion of arsenic in the viscera, but an unusually large amount, especially when we consider the space which had elapsed since death.

The following details of one of the processes, conducted subsequently to the Coroner's jury, will show the extreme nicety with which the quantitative analysis was made.

Two pounds, two ounces of muscular tissue were treated with hydrochloric acid over a water-bath. (This hydrochloric acid, although purchased as a pure article, had been previously diluted, then treated for several hours with sulphuretted hydrogen, without discovering the slightest trace of arsenical impurity—heated and distilled.) Pure chlorate of potassa was occasionally added, to facilitate the breaking up of the mass. The fluid so obtained was filtered, and sulphurous acid gas passed through it for an hour and a quarter, in order to convert the arsenic acid into arsenious acid, and so facilitate the precipitation by sulphuretted hydrogen. This latter gas was then passed through it for several days. The fatty matters remaining on the filter were treated with caustic potassa over a water-bath, as a higher temperature would have caused the escape of the chloride of arsenic. This was then treated by hydrochloric acid, filtered, and sulphuretted hydrogen passed through the filtered liquid. The yellow precipitates on the filter were treated with ammonia, in order to dissolve the sul-

phuret of arsenic; but, as organic sulphurets are frequently associated with this metallic sulphuret, it was considered necessary to deoxydize these with pure nitric acid. This was neutralized by caustic soda. Pure nitrate of soda, entirely free from chlorine, manufactured on the spot, was then added, and the whole mass fused into a clear, colorless liquid, which solidified, on cooling, into a white cake, consisting principally of the arseniate and nitrate of soda. This was dissolved and filtered, to remove the antimony, if any were present. Pure sulphuric acid was then added to drive off the nitric acid, and sulphurous acid gas passed through, in order to deoxydize the arseniate into the arsenite of soda. The sulphurous acid in excess was expelled by a gentle heat. Pure, washed sulphuretted hydrogen was then passed through, and a yellow precipitate was thrown down. The filters were washed with sulphuretted hydrogen water, in order that no oxydation might take place. This precipitate was then dissolved in dilute ammonia, and collected on a weighed watch-glass, and itself weighed, after being evaporated to dryness. Now, it is usual to estimate the weight of arsenious acid directly from the sulphuret; but Professor Doremus, in consideration of the fact that there is sometimes an excess of sulphur present, and wishing to make everything as fair as possible for the prisoner, adopted the following extremely ingenious method of obtaining the desired result: The sulphuret was treated with nitric acid, by which means the sulphur was converted into sulphurous acid, and the metallic arsenic into arsenic or arsenious acids. This sulphuric acid was precipitated with nitrate of baryta, and a white sulphate of baryta thus obtained. This was weighed, and from this the amount of the sulphur was estimated, as it could be with perfect exactness. This weight of the sulphur was deducted from that of the sulphuret, leaving the weight of the metallic arsenic, which was estimated as arsenious acid, by the addition of its proper equivalent of oxygen.

It was hinted, in the course of the investigation, that the defence had medical witnesses who were prepared to testify that arsenic existed in the human body in its normal condition, and that therefore the discovery of a small amount of it in a cadaver was no proof that it had been introduced from without; that arsenic was found in pretty much all soils, and that it was contained in wood, iron, paper; in short, that everything in the universe was more or less impregnated with this fearful poison.

The medical men who might, at first thought, without looking into recent authorities on the subject, have been inclined, from some care-

lessly-received impression, to support the first of these doctrines, concluded, before they were called upon the stand, that, in the present state of medical science, this idea was not tenable, and consequently testified directly the reverse; while the medical man who, instead of testifying to the other, and perhaps still stranger allegations, was not brought forward by the counsel for the prisoner.

The medical testimony for the prosecution was clear and consistent. Besides Drs. Doremus and Wood, four of the prominent physicians of the city were called upon. They were, Drs. Detmold, Macready, Barker, and Jones.

Dr. Doremus, on being called upon, at the close of his chemical testimony, to detail the symptoms of arsenical poisoning, not considering himself an expert in medicine, referred to the tabular results of an analysis of two hundred cases reported in the various journals at home and abroad, made by Dr. Benjamin Lee, which he considered as sufficient basis for the opinions expressed by him on that subject. This table he introduced for the inspection of the court. (See next page.)

The important points in the medical testimony which may be considered, from the unanimity with which they were testified to, although in different ways, may be summed up as follows, and will certainly be of value to medical men called upon to testify in similar cases. As they are the final and deliberate conclusion of six professional men of great intelligence and no little scientific erudition, they have almost the force of laws; and even though they may separately have all of them been enunciated before, their reassertion in a body will certainly add much to their force:

1st. Although certain idiopathic diseases may resemble arsenical poisoning in certain features, there is no disease which combines *all* its peculiar symptoms; nor is there any reported case of a combination of the several diseases which resemble it in its different classes of symptoms. Even the witnesses for the defence, while maintaining theoretically the possibility of such combination, acknowledged that a case exhibiting it had never fallen under their notice; nor could they refer to any reported case to sustain their theory. *The diagnosis of arsenical poisoning* is therefore not only possible, but, unless in the presence of an epidemic of Asiatic cholera, is comparatively *easy* and *suggestive*—that is, where the entire case is brought to the view of the observer. Circumstances may be present at any one time during its course, which will mask the diagnosis. Dr. Macready was particularly clear and decided upon this point.

ANALYSIS OF TWO HUNDRED CASES OF ARSENICAL POISONING,

By BENJAMIN LEE, M.D.

Note.—The symptoms are presented in the order of their frequency.

		No. Cases.
Preparation...	Arsenious acid	152
	Arsenical solution	23
	Arseniuretted hydrogen	4
	Arsenite of potassa	3
	Arsenite of copper	3
	Yellow sulphuret of arsenic	4
Manner of administration.	By mouth	163
	Inhaled	4
	Applied to surface	31
Object of administration.	Homicidal	45
	Suicidal	56
	Accidental	38
	Medicinal	31
Vomiting	Present in	182
	Absent in	6
Matter vomited	Brown	5
	Yellowish-green or dark	24
	Bloody	10
	Mucous	7
Pain	At epigastrium	92
	In abdomen	26
	Burning in throat	38
	In epigastr'm & abdomen,	25
	Constriction in throat	11
	Headache	8
	Absent	15
Pulse	Small and rapid	73
	Small	37
	Rapid	12
	Full	15
	Natural	1
	Slow	1
Thirst	Present in	88
	Absent in	7
Diarrhœa	Present in	99
	Absent in	21
Evacuations	Dark and fœtid	41
	Bloody	18
	Slimy	7
	Very fluid	7
Countenance	Pale and haggard	66
	Excited and anxious	40
	Edematous	9
	Calm	5
	Flushed	17
Nervous disturbances.	Prostration	36
	Paralysis	18
	Cramps	21
	Syncope	14
	Convulsions	20
	Absent	10
Mind	Clear	65
	" with drowsiness	12
	Delirium	16
	Confused	2
Tenderness	Of abdomen	42
	Of epigastrium	21
	Of both	3
	Of tongue	3
	Absent in	16
Skin	Cold	36
	Hot	25
	Cold and moist	26
	Cold and dry	1

		No. Cases.
Eyes	Injected	15
	Watery	8
	Sunken	10
	Brilliant	4
Urine	Dark and scanty, or entirely suppressed	19
Rectum	Excoriated	7
Ptyalism	Present in	5
	Absent in	1
Eruptions	Present in	3
	Absent in	
Termination	Death	95
	Recovery	105
Manner of death	Collapse or exhaustion	51
	Convulsed	6
	Calm	1
	Asphyxiated	3
	Comatose	7
Post-mortem examination	Recorded in	77
State of body	Remarkably preserved	9
	Rigidity of muscles	6
Œsophagus	Inflamed	10
	Pale	2
Stomach and intestines.	Inflammation of mucous membrane of stomach	64
	Inflammation of mucous membrane of intestines	47
	Softening of mucous mem.	11
	Ulceration of do. do.	8
	Perforation	2
	Healthy stomach	7
Blood.	Fluid, or very slightly coagulated	15
	Spots of extravasation underlining membrane of ventricles	7
Heart, &c.	Healthy	14
	Soft	6
	Hard	2
	Fluid in heart-sac	5
Lungs, &c.	Engorged	11
	Normal	21
	Collapsed	2
	Fluid in pleura	2
Bladder of urine.	Contracted	12
	Full	1
	Inflamed	1
Kidneys	Congested	9
	Healthy	11
Brain	Congested	9
	Healthy	2
Liver	Congested	5
	Softened	2
	Healthy	12
Contents of alimentary canal	Reddish-brown fluid	4
	Mucus	3
	Yellow spots	5
	White grains	8
	Yellow scales	4
	Greenish fluid	3
	Yellowish fluid	5
	Cyst with partly organized walls, containing crystals of arsenious acid	1

2nd. The minimum quantity of arsenic which will produce death may, for the present, be safely stated at from two to three grains. (*Vide* "Ranking's Abstract," 1847, vol. i., p. 294.) It is very probably less; but there is at present no case reported on which it would be safe to base such an assertion. That of Sir B. Brodie, where one and a half grains were thought to have caused death, was complicated with cancerous disease of the tongue in its last stage; which, apart from its own debilitating effect on the patient, would also permit a solution of the poison to enter the circulation through the ulcerated surface, and so to produce its fatal result more promptly and more powerfully.

3rd. The effect of laudanum on a patient already suffering from a poisonous dose of arsenic would be to *mask* the *symptoms*, not to interrupt the destructive process. Pain would be partially relieved by it; vomiting might be checked to some extent; and as this is an important means of relieving the stomach of contained poison, its fatal effects would be in this way rather hastened than retarded. As it is a nervous stimulant, it would support the rapidly-failing strength, and it is probable that the intense pain under which the patient suffers would render him very tolerant of it.

This portion of the testimony was very explicitly given by Professor Barker.

4th. In almost the precise language of Dr. Detmold, "The *non-existence* of the already described *post-mortem* appearances *proves nothing;* their existence (in cases where there is other evidence pointing to death by arsenic) is proof positive." The latter clause of this dogma requires, perhaps, a little modification; but the former is established beyond a doubt.

5th. The existence of a certain amount of arsenic in the tissues of the body leads almost necessarily to the conclusion that a much larger quantity has been taken into the stomach, as a considerable portion of the dose would, in the great majority of cases, be thrown off either in vomiting or purging, or both; and in a case lasting over twenty-four hours, much would be eliminated by the various emunctories. In order to determine the time within which arsenic began to be eliminated by the kidneys, Professor Doremus took the sixteenth of a grain of arsenic in solution three times during the course of a day, and preserved the urine passed during the twenty-four hours immediately following the prehension of the first dose. This urine furnished abundant stains of metallic arsenic. This was more especially elicited in the examination of Drs. Macready and Jones.

6th. Arsenic is not a normal constituent of the human frame, either before or after death.

These six conclusions, thus definitely stated, have, we repeat, a very great worth; and as no practitioner is exempt from the possibility of a call to the witness-stand, we recommend them to the consideration of all our readers.

We purpose in a future issue to remark still further on some of the prominent points of this interesting case, and to consider the medical testimony for the defence, which, though in the main corroborating that for the prosecution, had still some peculiarities of its own which deserve mention.

The Causes of Pulmonary Consumption, and its Treatment by Superficial or Endermic Applications and the Inhalation of the Nutrient Elements of the Blood and Tissues. By H. P. DE WEES, M.D., New York.

The blood from tuberculous subjects is found to be liable to certain alterations from the healthy state. The noticeable deviations consist chiefly in the imperfection of the elaboration of the fibrin; the decrease, in general, of the red corpuscles, and the increase of the so-called white or colorless corpuscles. Such defects must necessarily affect every process of nutrition.

Although every organ comes in for a share in this depreciated quality of the blood, yet the lungs, the mesenteric glands, and brain become the chief locations for the deposition of tubercles. They may invade by solitary deposits, or by disseminations through the tissues, with symptoms easily recognized in the plurality of cases; or, by a most insidious infiltration of one or both lungs, the only noticeable deviation from health being the gradual, but at first hardly perceptible, difficulty of breathing, or its increasing rapidity. Sometimes, while the congestion is accruing in the pulmonary cells, a deceptive disturbance in the functions of the stomach serves, for a time, to detract from suspicion of any error in the lungs.

Although the composition of tubercle varies under certain circumstances, it is found convenient, for practical purposes, to divide it into two conditions: the plastic and the aplastic. In the first we have the gelatiniform, semi-transparent, gray, miliary tubercle, possessing traces of abortive or degenerated organization; while in the second or aplastic, no relics of organization are discoverable, the mass being

what we know as the crude, yellow tubercle, granular, and disposed to soften.

The character of these tuberculous deposits depends on the condition of the blood, and the vital capacity of the tissues invaded. The plastic tubercle may degenerate into the lower grade of the aplastic, but the latter never advances into the former by any progressive change.

As above observed, infiltrated and also interstitial tubercle is insidious in its derangement of the natural nutritive process of the lung tissue, the disintegrative deposits being of a microscopic character. They frequently escape detection during life, and even under post-mortem examinations, as the symptoms do not distinctly differ from those of sub-acute inflammation, unattended by tubercular depositions; whilst the pathological conditions are apt to be regarded, on common inspection, as the mere lymph products of the previous inflammatory actions.

In lungs which have been previously damaged, the state of the blood may assist in the corroboration as to their tuberculous depravity. Although inflammation of the lung may become the parent of tubercle, it does so only under certain conditions of the blood, already degenerated; or from disturbances in the *harmony of assimilative relation* in the tissues themselves. It is a fact to be remembered, however, that the *locale* of tubercle is not usually the seat of the preceding pneumonia, which more frequently attacks the middle and lower portions of the lungs, whilst tubercle chiefly invades the upper. When either the lungs or mesentery have been stealthily encroached on by tuberculous depositions, inflammation is prone to arise, and then the errors of the blood become manifested by rapidly-increasing deposits.

Although acute, or hasty consumption, is caused in a great measure by the rapid evolution of tubercles, and their consequent impairment of the function of the lung, yet this alone cannot serve entirely to account for the speedy waste and dissolution that melts, as it were, the lungs away in the profuse discharges, which in many cases so suddenly ensue, when the preceding cough was dry and irritative, or, at most, was accompanied by a frothy white-of-egg-like expectoration. Another condition arises, in the rapid decomposition of the nutrient fibrinous lymph into pus, by its contact with membranes whose integrity is insufficient for vital renewal, and which are fast verging of themselves towards disintegration and liquid dissolution. In these cases pus reproduces pus. The nutrient lymph exuded for the renewal of wasting tissue is in itself degenerated, and tending to further decomposition, whilst the organ to be nourished is degraded in its vital capacity; and thus lymph that should have been renewed, and

tissue which should have been reproduced, mingle in the destructive changes that flood life away.

Even in these desperate states, arrest has sometimes taken place in an almost miraculous manner. A sudden change has ensued in the blood—the type of disorganization has been exhausted, and isolation of the degenerated portion commences. The exuded lymph becomes organizable, and a barrier to further destructive changes is established, by the production of a so-termed false membrane.

After the hepatization or consolidation of a certain portion of the lung has taken place, the retraction from the diseased condition may ensue quietly, provided the tubes remain open or become permeable, through which the expectoration can be voided. But certain blood changes must also ensue. Its fibrin, and other plastic components, must be more highly elaborated, that the new tissue shall be remodeled in proportion to the waste of the old. In such cases the restitution is comparatively perfect. In others no such remodeling or restitution ensues. The solidified lung has neither direct supply nor means of exit. The bronchial tubes are closed, although some loosened blood-clots may be expectorated; the air-cells are impermeable, and the decay of the impaired tissue is progressing. An abscess is formed, and its contents may be evacuated by spontaneous softening and rupture, whilst a cavity, more or less extensive, is left. Sometimes, previous to the evacuation, and even softening of the diseased portion, the surrounding parts are relieved from their engorgement, and their air-cells again resume their functions. Organizable material may be thrown out, completely restricting the diseased parts, and rendering the discharge of the contained matter impossible, except through surgical means. If the abscess burst, lymph is exuded, and the cavity becomes lined with a membrane, which may secrete more or less The patient may recover—not with a lung equal in volume to the natural condition, but with diminished capacity, as evidenced by the partial falling in of the walls of the chest. Sometimes the cavity membrane secretes pus, with its gradual wasteful influence, or the cavity may not be completely lined, whilst the stealthy destruction of tissue keeps on. It may be slower or faster, but with noticeable loss to the sufferer. If perfect recovery take place, it is a mere matter of time, youth, climate, and increasing blood-purity.

In cases like these, we have a beautiful illustration of the *practical* differences between inflammation (which in reality is a disintegrating process, although by some miscalled "healthy,") and vitalization, which is the true power of repair. Upon the student this fact cannot be too

strongly impressed—that inflammation is a perversion of true nutrition, whilst the highest type of development is in the perfection of vital action.

From the consideration of these views, the definition of what is meant by a strumous or scrofulous constitution can be readily gained; the amount of depravity varying with the state of the vital force existing in the blood, and in the structures themselves.

As a vast number of tissues enter into the composition of the body, they must necessarily depend on the blood for their reproduction. Yet it must be remembered that, although the blood contains the elements of renewal, yet the tissues must possess the vital power for organic selection and transformation. The same is seen in the growth of a plant. The earth contains the inorganic materials and the water, but the growth peculiar to it, and its proper principles, reside in the transforming power pre-existing in the early germ. Thus, two plants may be nourished from the same elements in the same mound, but their power of growth and transformation is self-inherent; one producing a poison baneful to animal life, whilst the other may afford its antidote, and a nourishment. In pathology the like holds good. The error may be in the blood, whereby every organ may be more or less attainted, or it may exist in the tissue itself, the blood being comparatively innocent, whereby growths or changes prejudicial to the well-being of the individual may be evolved.

A minute detail of the relation of the blood to the tissues and the various organic functions would be out of place here. But a cursory exposition may be necessary for the student, if not for the more advanced practitioner, that some of the various functions of assimilation may be comprehended. We will begin with the uses of the salivary secretion.

The saliva is secreted by the parotid, submaxillary, and sublingual glands, in conjunction with the follicles, distributed in and beneath the buccal mucous membrane. These follicles are very minute, and are surrounded by a plexus of capillary vessels. The peculiar substance upon which the salivary fluid depends for its converting properties is called "ptyalin." It acts as a ferment, and is chiefly furnished by the buccal glands. This organic constituent has a chemical action over the farinaceous elements of the food, converting the starch matters into dextrin, or grape-sugar. Over the nitrogenized portions of the aliment it does not seem to possess any chemical reaction.

The gastric juice is secreted by the follicles of the stomach; its peculiar organic constituent, called "pepsin," in conjunction with the

proper acid of the stomach, has the property of dissolving the animal or nitrogenized matters. This acid is generally supposed to be the hydrochloric. The gastric juice is not poured out during rest of the stomach. The presence of food, or other exciting substances, are requisite. The acid condition diminishes *pari passu* with the decrease of the contents of the stomach; the secretion becoming alkaline, or neutral, when the organ is empty. A moderate amount of stimulus, as produced by salt, pepper, &c., increases the secretion of the gastric juice; but, mechanical irritation, as induced by improper food, or by its excess, diminishes proportionately the secretion; a ropy, tenacious mucus being poured out instead. Frequently this is not the only evil. Nausea, with gagging or vomiting, is apt to ensue, whilst more or less bile may reflow or be pressed back through the pyloric orifice into the stomach, producing, by its power to arrest fermentative action, a train of evils only known to the rash dyspeptic. Vegetable acids, such as vinegar, lemon-juice, &c., at times have the power of retarding the secretion of gastric juice. The digestion becomes slower and more laborious. They become valuable remedies in those cases where the secretion appears to be too great. Ice, or very cold water, at first renders the gastric mucous membrane pallid, the secretion being retarded or completely arrested, until reaction is established, when a greater amount of gastric juice is secreted. Repetition of cold water may induce complete indigestion.

The quantity of gastric juice to be secreted depends more on the *demands* of the system than on the *amount* of food taken. This fact, although mentioned by authors, seems very little comprehended by non-medical persons. The portions of the food remaining unsaturated by the gastric fluid must either be refused by the stomach, or pass, in a crude state, into the duodenum, in an improper condition for further reduction. Duodenal dyspepsia is a consequence, attended with colic, spasm, diarrhœa, or disturbances in more remote parts of the system. This "overloading" is a frequent cause of convulsions, bilious febrile symptoms, &c., in children. Amongst those who masticate slowly and perfectly, this form of dyspepsia is rare; since time is given whereby the appetite is more readily satisfied, and the insalivation is rendered complete, by which the farinaceous substances are more easily converted into sugar, whilst the gastric juice is secreted in proportion to the demand. The stomachs of these "bolters" are subject to organic alterations, difficult of retracement even under a more prudent course.

The demands of the system on the stomach are greatly lessened

from inactivity, and consequent loss of muscular tone, and from over-clothing; yet many persons of this description are habitually heavy eaters, and of course must be sufferers. They forget, or do not know, that a species of digestion has to be performed by every portion of the body. They continue with their inactivity, warm rooms, and over-amount of clothing; whilst the consequent feebleness operates against the actual requirements of the system for renewal. Hence, they become subjects for tumors, abscesses, tubercles, &c., as witnesses of their utter disregard to the necessities of their stomachs. How often do they exclaim, "At one time I could eat any quantity, and now am obliged to watch every mouthful!" Certainly, they not only could, but *did* eat any quantity. Pay-day must come, if the man lives long enough.

After a night's debauch, the thirst, the chip-dry mouth and throat, the rapid pulse, the feverish restlessness and bursting headache, are the mere tell-tales of the dishonored draft on the stomach for its "salivant," now more precious than gold. Any quantity of water is swallowed, but the gorging food remains undigested. The stomach becomes irritated, but will not secrete the evil-dispelling juice, and bile begins to be passed into the stomach, to increase the misery. Children are not the only ones that indicate by acrid secretions, aphthous patches, hives, and other skin eruptions, this over-cramming of the stomach; larger babies have the same.

Lesion or impairment of the functions of the pneumogastric nerves tends to derange the digestive capability of the stomach. The secretion of gastric juice is not only impeded, but the stomach walls are impaired or deranged in their natural movements. Vomiting, inappetency, faintness, palpitation, spasmodic respiration, &c., form some of the attendants on this nervous derangement. In one case lately under my care, the amount of bile ejected was enormous, being accompanied by constant gagging and suffocative sensations. The gastric juice is the proper solvent for the azotized elements of the food, the starchy, oleaginous, and saccharine matters not being chemically acted on by it. The saliva, as before mentioned, presides in a great measure over the starch materials, the produced sugar being readily absorbed by the stomach. The uses of this product appear chiefly to support respiration, and to aid in the production of animal heat, whilst under certain circumstances it probably may be converted into fat. Fat is not a true histogenetic or fibre-making material, any more than other non-nitrogenized bodies. But the fatty matters, although not directly fibre-forming, yet enter largely into the formation of adi-

pose and nervous tissue, and are essential in the acts of assimilation and in the reproduction of the early structures. The fatty materials are converted by the gastric juice into a more minute condition, or are held in suspension by it; whilst the albuminous matters are reduced by the aid of the acid of the stomach into a true solution, and into one uniform state.

The experiments of Bernard on solutions of albumen are highly interesting, and their results may lead to the better practical understanding of some of the forms of that Protean malady—Albuminuria, or Bright's disease. He found that a solution of albumen in very dilute hydrochloric acid, injected into the veins of an animal, made its exit speedily by the route of the kidneys; whilst a solution of albumen in gastric juice, so injected, left no discoverable trace in the urine. I am satisfied that in many of the cases of albuminous urine in pregnant women, and especially in the early stages, the acid of the stomach—now generally admitted to be the hydrochloric—being in excess, acts on the albuminous portions of the food as a ready solvent, and being rapidly absorbed into the vessels, the albumen is excreted by the kidneys, giving rise, like other foreign matters thrown upon other organs, to congestion more or less extensive, and a disposition to those organic changes found to accompany albuminous kidney disease, of pregnant women especially. The lactic acid may also have the same solvent power over albumen. Although the derangements of the pelvic viscera happening with pregnant women—obstructive pressure upon the ureters, &c.—may accompany and aid this condition, yet they do not account for the whole attending phenomena. And sometimes, *in advance* of this albuminous showing of the urine, is puffiness of the face, or other portions of the body, followed by an erysipeloid affection of the skin, and even with indications of serous effusions into the cavities of the chest or cellular tissue of the legs.

Space is not allowed for the further mention of these views; but it would be well to caution certain "prompt" gentlemen of the profession, who hastily advise premature delivery, sacrificing the child, and many times injuring the mother, without fully comprehending the *causes* of the kidney derangement, and its frequent disappearance under properly-directed medical treatment. In further proof of these views, the albuminuria has often been seen to disappear suddenly, and coincidently with a change of the acid secretions of the stomach—in other words, spontaneously.

Not in pregnant women alone may this albuminous condition of the urine happen. It may ensue in the male, and in the unimpregnated fe-

male. In the tuberculous pregnant, it may serve to account for the arrest in the chest changes, independent of any other demand for the albumen of the blood. And *vice versa*, it may point out the cause of those cases in which tuberculosis has been dated from pregnancy, the albuminous excess of the blood producing depositions in the tissue of the lungs, independent of any kidney structural change. It is always prudent for the medical practitioner to remember, that some diseases are *complimental*, whilst others are *compensatory*.

Temperature has also a most important influence over the solvent power of the gastric juice. From 96° to 100° has been found most favorable. Amongst children, whose circulation is languid, where the temperature of the stomach barely is sufficient for digestive purposes, the "process of hardening" by exposure of their limbs, or by too light covering of other parts, not only aids in the reduction of the heat so essential to the stomach, but becomes the parent of scrofulous changes in the constitution, and also of tuberculous degeneration of the lungs.

Although for the most part we associate great bodily waste with pulmonary consumption, still it certainly does not attend in all cases. For we constantly see fatty, albuminous-looking people, whose lungs are greatly damaged, and who die from consumption, with a tolerably fair share of *embonpoint*. But they are weak, cannot undergo muscular exertion, and are terribly averse to fat in any shape in their diet—having their meats well done, and denuded of anything likely to produce it. So it is with those poor white-tissued, plump children, whose parents sacrifice them on the altar of prejudice or fashion. They think their children can stand it, as Mr. Smith's children have been so hardened—not noticing that Mr. Smith's children were fibre-producing, heat-generating little fellows, whose stomachs, perhaps, could afford it, or needed cooling for the degree necessary for healthful digestion.

There are other consumptives, from whom the subtle leech dissects every portion of fat; they can bear fatigue surprisingly; they cough day and night; they eat prodigiously, and bear fat well. Indeed, many seem to almost live on it. They fairly walk into their graves, which have so long been claiming their skeleton bodies. They die, after being housed only a few days, either from hæmorrhage, or because there was not sufficient lung surface left unconsumed, for the absolute atmospheric wants of the system. On examination of these defying cases, although the lungs are found excavated, yet the portions that are left are comparatively sound—the tubes are not occluded by

infiltrations of matter, and the remaining cells are not thickened or changed in their normal structure—there were only not enough of them. I have seen such fight on, and get well; whilst others have fought on to the last, with the hope lingering that the victory would still be on their side.

Consumption, that is, tuberculous disease of the lungs, though in most cases attended with cough and profuse expectoration, is not always so—a person may have *dry* consumption—the cough being a mere irritative hack, or a long wheezing one, with a bronchitic expectoration, if any, like the white of egg. They gradually fail; no particular symptom records the cause; every function seems to decay with even step, whilst the lamp of life burns brightly on one or both cheeks —in some only put out by the heavy dewy sweats, to be relit on the morrow more brightly still. And thus, life "growing sanguine with its lightening load," and the voice becoming whisper-silent, they sink into that sleep whose dreams are undisturbed, and whose wakening is full of promise.

In my own experience, I have found a low gastric temperature attending those troublesome cases of regurgitation of the food, the particles being scarcely acted on, although they may have lain in the stomach for several hours. The persons so afflicted are apt to complain of having "cold stomachs;" but this condition of regurgitation may also happen when the stomach temperature is too high—the pieces rejected, however, are generally more or less softened. Diarrhœa is more frequent in its occurrence from this state, than regurgitation, owing to the irritation established from the passage of crudities into the duodenum.

The fatty matters, besides their disposition in the formation of the nerve vesicles, have a special destination in the primitive growth of other parts of the organization. They serve to maintain animal heat by combustion within the lungs. Even malignant growths demand fat as one of their elements. A due admixture of oleaginous substances appears to be absolutely necessary, not only for the digestion of the albuminous materials, but also for the growth of the tissues. It is probably owing to the neglect of this law that so small a proportion of true contractile muscular fibre is to be found in the fat, white-tissued-looking persons. The fat they possess is the product of conversion of the albumen, and the *vegetable* oil matters in the cells of the plants consumed. They lack fibrin—the very scaffolding necessary for fibre growth; and when attacked by tuberculous or scrofulous disorders, they melt down, as it were, without the power either of resisting waste, or

of remodeling. Wounds, or any breach of continuity, heal in them with difficulty, and are only forced to do so, under artificial stimulus, constitutional or local, by which the fibrin may be engendered for constructive purposes. This class of persons are subject to consumption; and their cure, if it take place, can only be effected through those means by which the blood shall be rendered less albuminous and more fibrinous, by dietetic regimen and superficial remedial application. With these, albuminuria is not only incurrent, but I have seen it preservative; the kidneys acting as safety-valves in the withdrawal of the excess of albumen. They are also subject to ulcers of greater or less extent and number, that appear by their curdy discharges to run off the same excess of albumen, whilst by their irritation the fibrin is increased. Practically, it is not found beneficial to heal these ulcerations suddenly, as albuminuria may become established, if not present, or be increased if previously existing. The substitution of the animal oils, or cod-liver oil, in these cases, is not only difficult, but at times impossible. Indeed, in most of them, the fault does not lie in the oil matters, although they are imperfect, but abundant; it lies in the deficient elaboration of the plastic elements. We now see that consumption may depend not only on deficiency of the oleaginous materials, but also on the deficiency or depravity of some others; and the remedial selection is only to be made by the careful grouping of the symptoms, and by the analysis of the assimilative relations of the patient. The benefit accruing from the use of cod-liver oil in many wasting disorders, is mainly to be attributed to the importance of fatty matters in the process of assimilation.

The inorganic materials of the blood also serve important uses, in regulating its chemical condition, and in supplying the necessary bases of growth. The potash salts hold a special relation to muscular substance; the phosphates and carbonates of soda maintain the alkalinity of the blood; whilst the chloride of sodium, or common salt, renders important services, not only to the solids of the body, but also to the secretions. In the young growing tissues, in the formation of the skeleton, and the teeth, the phosphate of lime performs a most valuable office. We now see the *rationale* of the employment of the hypophosphites of lime and soda, recommended by Churchill in the treatment of consumption—they not only act as absorbents, but repair or retard the waste of tissue. In the blood, muscles, and hair, iron enters largely.

(TO BE CONTINUED.)

On Climate Fevers and Acclimatization in the Tropics. By G. VAN ARCKEN, M.D. (Communicated in a letter to the Editors.)

BOGOTA, NEW GRENADA, *Jan. 26th*, 1859.

EDITORS OF THE AMERICAN MEDICAL MONTHLY:

In one of the last numbers of the MONTHLY I have seen a notice of the death of Doctor D. Uhl at Ciudad Bolivar. You will recollect that before my leaving New York for Europe in February last, Dr. Uhl was introduced to me by Dr. Davis, he wishing to get some information about the tropics in general, and Ciudad Bolivar in particular. Having visited the latter place in the summer of 1857, I advised him to change his plan, and visit rather some other place in Venezuela or South America; stating, at the same time, to him, the poor prospects for practice at Ciudad Bolivar, and the extreme unhealthiness of the surrounding country.

Ciudad Bolivar, at present so-named after the liberator of South America, went formerly by the name of Angostura, or *the Narrows*. It is situated at the eastern end of the great plains of Venezuela, and is built upon the slope of a slight eminence, close to the Orinoco River, at a place called the Narrows, whence its name. The mouth, or mouths of the Orinoco River, are still about 200 miles below the city; but, as there are hardly any settlements between it and the mouth, it may be said to be situated at the commencement of the Delta of the Orinoco, which occupies a range of country equal to the whole State of Texas.

The diseases reigning in that country are more or less those of all the tropics, especially the borders of great rivers.

In the summer, or dry season, malignant intermittent, or congestive fever, and a peculiar dysentery, prevail; the latter so fatal, that no medical man ever takes charge of a patient who has been for six days or more suffering from it, recovery being in such cases entirely out of question. But the rainy season, or winter, is decidedly worse. As soon as this sets in, all diseases change of a sudden in character, assuming mostly a severe gastro-bilious form. In the natives they become simple bilious fevers, running occasionally into a typhoid form. In the foreigners, the disease sometimes assumes the genuine yellow fever form, especially at Ciudad Bolivar, where the strong trade-winds bring them a daily supply of poisoned atmosphere from the Delta of the Orinoco. But more frequently they suffer from what I call a climate fever, very few indeed being the foreigners who entirely escape it. This fever is the *ne plus ultra* of its kind. It is comparatively

so little known that some physicians deny its existence altogether. This is mostly the case with the natives, who only make an examination on their first visit, and take it for granted that a disease never changes its character—after the fashion of the Chinese, who only point their guns at the commencement of battle, and then keep firing away, never mind how often the enemy changes his position.

This acclimatization fever mostly commences with all the symptoms of a gastro-bilious fever; of course the physician acts accordingly. But on the next day the nature of the fever appears to be entirely changed, the symptoms present being those of a slight intermittent attack. On the third day the fever assumes suddenly a double, sometimes a triple, intermittent type; that is, two or three different paroxysms take place in one day. This alarms the doctor, who gives immediately thirty grains of quinine. But hardly has the fever smelled the quinine—it cannot be the effect, that takes at least four hours—when lo! in the course of an hour the tongue becomes extremely foul, a bitter taste comes up from the stomach, etc.; in fine, the fever declares itself of a true bilious form. Emetics and purges are now resorted to, and in forty-eight hours the patient is free from fever, which this time leaves for good. But now commences the real danger; the patient, who generally has not eaten anything for five days, should now have plenty of strong broth and soup, with wine and water; and to habitual topers brandy and water should be liberally allowed. For in a great many of these cases the infection of the system has been so violent, the malarious poison has saturated the blood so completely, that it is enabled to make one last, and sometimes successful, effort to get the upperhand, by producing a sudden congestion and infiltration of both lungs, which organs are found after death to be completely hepatized by a sanguinolent semi-fluid; this being the constant and only pathological condition by which we can account for the sudden death in such cases.

As to the preservation of foreigners in tropical climates from infection by fevers, etc., a great deal may be done, which, however, is left undone by the careless habits which people either bring with them, or contract shortly after their arrival. In the first place, everybody going to a hot country should go well provided with a stock of pure flannel under-shirts and woolen socks. In those not accustomed to its use, it will most likely produce that troublesome complaint, lichen tropicus, or prickly heat; but I consider such an event as pure gain, it being evident that nature relieves herself in this way of some morbid matter, which might under other circumstances have given rise to a much more

serious disorder. Under-shirts, drawers, and socks should be changed every day, and separate woolen night-shirts used; it being a most unhealthy and disgusting habit to lay down with under-clothing still saturated with sweat.

On getting up early in the morning, the whole body should be sponged and rubbed, first with pure water, and afterwards with water and *eau de Cologne*. This makes a person feel fresh all day long, and saves the trouble of "*going to take a bath*" in the heat of the day.

The whole body should always be kept scrupulously clean, and the skin in the highest possible state of action.

The next question is that of eatables. It is a common thing with foreigners to lament about "*the flesh-pots of Egypt they left behind.*" On getting out of bed they want some three or four, not cups, but bowls of coffee, a few pounds of beef-steak, and sausages and cheese to match. Now, all this has a most fatal effect. People going to a hot country should adopt, as far as possible, the habits of the natives.

After washing and dressing, I take usually a small cup of chocolate, and then start to see my patients; having frequently twelve to fifteen visits to make, and sometimes dressings to apply, this occupies me till half past nine o'clock, the usual breakfast hour in hot countries.

For breakfast a small quantity of roast mutton or beef-steak, a few soft-boiled eggs, a small cup of strong coffee, and bread and butter, are all a man should take.

At one o'clock some people take a lunch; I prefer fruit, such as oranges, pineapples, watermelons, etc. The dinner hour is four o'clock; a plate of soup, roast beef, with fried potatoes or plantains, fresh fish, sweetmeats and coffee, *à la Française*, constitute it, and after that I never take anything, and, least of all, never eat a supper.

Foreigners are very apt to suffer from profuse perspiration; this is perhaps the best thing that can happen, and should always be encouraged by a plentiful supply of refreshing drinks, such as lemonade, orgeat, etc.

Alcoholic drinks should be scrupulously avoided, or at least used only in very small quantities, because they always produce more or less derangement in the functions of the liver. Let those who are accustomed to stimulants, take some light French wine with water at dinner, and during the day.

Next, the keeping of late hours and venereal excesses are bad enough everywhere, but here still worse. In a country where morals are at so low a standard as in this, young foreigners are very apt to fall into the habit of knocking about in the streets until after midnight,

a kind of amusement which they technically style "having some fun with the girls!" Now, if walking in a hot tropical sun is hurtful to a white man, the tropical night air is still more so, for after dark the miasmatic exhalations have free sway, being no longer neutralized by the rays of the sun. Unless professionally engaged, I make it a principle never to be out after eight o'clock.

Attention should also be paid to the state of the digestive organs; a great deal may be done towards keeping them in good order by attending to the above regulations, and by taking plenty of exercise, especially early in the morning. Still, sometimes the assistance of Mother Physic is necessary. For myself, I know of nothing better than the lately so much abused calomel and jalap, in equal doses. I take five grains of each two or three times daily, with weak broth and toast diet, and repeat the medicine until perfectly liquid and green stools follow; I know then that no fever can touch me for six or eight months to come.

Some practitioners give only salts or castor oil in such cases. Against this I have to say, that to bring away two or three feculent stools is not the object at all; I want to produce a violent excretion of the retained, and frequently vitiated humors; such must take place to be productive of any good.

I have lived now nearly eight years in the tropics, mostly moving about. During this time I have visited and lived at New Orleans, Vera Cruz, Havana, Panama, and Port-au-Prince; last, though not least, I have traveled and lived two years in the Plains of Venezuela, a country unequaled in the world for unhealthiness, even by the redoubted Pontine Marshes; I being the only foreigner who ever traveled there without getting sick. All these countries are the homes of the most malignant fevers and dysenteries; still, I have escaped them anywhere and everywhere, owing to an occasional liberal dose of calomel and jalap.

Hæmatin Crystals, and their Medico-legal Importance. By DRS. L. BUCHNER and S. SIMON, of Darmstadt.

(Translated from *Virchow's Journal*, and prepared for the MONTHLY, by L. Junghanns, M.D.)

In 1853 Teichmann discovered that by the action of acetic acid on dried blood, colored rhombic crystals were obtained, in which the coloring matter of the blood was recognized as the chief constituent

They were called hæmatin crystals. The discovery excited attention, and promised to be of practical utility in medico-legal examinations. All methods hitherto employed in distinguishing dried blood or old spots of blood on cloth, wood, iron, &c., from other similar matters or stains, had been either so inaccurate or so dependent upon the accidental skill of the examiner, as to leave much to be desired. His researches it was thought would supply this want, and present an easy, accurate, and applicable means of recognizing dried blood, or spots, or stains originating in any species of red blood, however old or in whatever objects they may be found.

Teichmann referred to the practical usefulness of his discovery, and Professors Bureke and Virchow both considered it valuable in medical jurisprudence. The same view of its importance induced us to make the following investigations, which, in part confirmatory, and in part supplementary of what has hitherto appeared, will be of especial assistance to physicians who may be called upon to investigate or give an opinion upon questions of this kind.

Description of the Crystals and their Action under Reagents.—They are microscopic, and present in their form, color, manner of grouping, and chemical relations, characteristic peculiarities. Their form is not a rhombic column, as Teichmann says, but a rhombic plate, as can be readily seen in single specimens floating in a liquid, and turning on their axes, and also in crystals, formed when operating upon large quantities. Well-formed crystals show sharp and distinct outlines; those less perfectly prepared take the shape of the so-called weaver's spool. Between this and the perfect rhombic form, an intermediate one is perfectly observed, resembling paragraph marks, in which both obtuse angles are rounded, and both acute curved like a bow. Sometimes they are found longer, smaller, and more slender; at others, shorter, thicker, and more approaching a quadrate form, in which latter they show an inclination to assume less distinct outlines.

The color varies from a dirty-yellow, through reddish-brown to a deep black. Their general color, however, is a dirty reddish-brown, more or less dark, according to the color of the solution from which they are separated. However, some appear darker and less transparent from being placed more on their edges, and in such cases present the appearance only of a black but always rhombic line. Those described by Teichmann as fine black sticks may have been nothing but such plates standing on their edges. Their size varies from the nature of their preparation—the rapidity of evaporation or other circumstances. Under a power of 300, they sometimes appear so small as hardly

to be perceptible, with millions of them in densely-crowded groups occupying the field, and then again so large and at such distance from each other that only twelve or twenty enter the field. In general, every preparation, even though incomplete, will contain a large number; and when not numerous, the conclusion of their presence should be drawn only with precaution.

Like other microscopical crystals, they tend to lie across each other in the form of the roman X; frequently, also, in the form of a star. In preparations made from small quantities of material, both these forms will be wholly wanting. Teichmann says that he saw these crystals, not only as rhombs proper, but as needles, sticks, and granules, resembling those of black pigment; we also have seen such forms, but cannot attribute to their presence any medico-legal importance. From the facility with which the characteristic forms of these crystals may be obtained, those preparations alone which exhibit well-developed forms should be accepted. There will be the greater necessity for this exclusion also, from the fact that other liquids, saturated with coloring matters, as, for instance, the bile, present under similar treatment dark corroded granules of angular size and form, and which, so far as our investigations go, agree in their chemical reactions with those of crystals of hæmatin.

The following results of the chemical reactions of these crystals, obtained by operating with large quantities of the material, and which when obtained were placed in small test tubes, boiled, and placed under the microscope, agree in the main with those formerly indicated by Teichmann.

These crystals are quite insoluble in water, and also in alcohol, acetic acid, phosphoric acid, and hydrochloric acid, even though these be dilute or concentrated, hot or cold, or left to act for a longer or shorter time. They dissolve with difficulty in ammonia, dilute sulphuric acid, and officinal nitric acid. They are readily soluble in solutions of caustic potash, producing a dark-green color; likewise, but not so readily, in English sulphuric acid, and leave at the bottom of the tube dark viscid masses of pigment, with amorphous flaky masses floating through the liquid. In forming nitric acid they dissolve instantly, turning the liquid a brownish-red color. Their behavior under action of chlorine water may be mentioned as peculiar. When submitted to it for several days, they retained their characteristic forms, but from their many cracks and furrows, seemed as if corroded. At the same time they lost their color and became transparent.

Preparation.—The method of preparing or obtaining crystals of

hæmatin, given by Teichmann, is as follows: The blood is dried and then treated by heating it with concentrated acetic acid. This method is good, but too restricted. According to our experience, no previous preparation of the blood is required, nor does the acetic acid require to be heated. A drop—a portion of coagulum—or a strip of any cloth, stained by blood, having concentrated acetic acid poured over it, and left for a few hours or days, will always furnish under the microscope some, however imperfectly developed, crystals of hæmatin. For their preparation nothing is required but the smallest quantity of blood, or liquid colored with blood, and a surplus of concentrated acetic acid. (Dilute acetic acid is of little value; oxalic, tartaric, or citric acid, not any at all.)

We obtained the crystals with equal facility from blood recently drawn, and that preserved for months, and putrefied and discolored; from spots of blood on wood, garments, iron, &c., days, weeks, or months old; from a strip of a butcher's pants eight years old, and which had not been worn for a year and a half; from dried ox-blood, two and three years old; from blood of men, birds, mammalia, fish, amphibious animals; from arterial, venous, and menstrual blood; from blood beaten and not beaten; from blood coagulated, fresh, dried, evaporated to a syrupy consistence, boiled, diluted with water, or in artificial ways deprived of its serum or coloring matter; neither did the accidental presence of impurities in the blood from other animal matters in any way prevent the development of the crystals.

All the manipulation needed for their preparation is simply to add to a drop of liquid blood, or liquid colored by blood, a small surplus of concentrated acetic acid, and to evaporate the whole slowly in a watch-glass upon a sand or water bath, or even a spirit-lamp, at an average temperature of 40°–50° C.

The blood is wholly or partly dissolved by this acetic acid, which it thereby reddens, and when dried forms on the bottom of the glass a thin, brown-red, transparent crust, in which the crystals lie imbedded, and recognizable by placing the glass, without further treatment, under the microscope. The common microscopic object-glasses can be used for the same purpose, but are not recommended, from the disposition which acetic acid has to spread and overrun the sides, &c. If the quantity of coloring matter be small, the crystals will be found only in the small colored edges of the precipitate.

To obtain a clear and transparent preparation, the coagula and flakes formed by the action of the acetic acid may be removed by any mechanical means before evaporating. Still better preparations may

be had by a slightly complicated process, as follows: by mixing the blood material with acetic acid in a test-tube, and boiling it a few minutes over a spirit-lamp. This dissolves all the coagula and clots, and gives an equal red-colored solution, a few drops of which placed on the watch-glass is evaporated, as above described.

Special attention was given to the medico-legal aspects of the subject. We examined old and new spots of blood on rags, garments, iron, wood, &c., and obtained from them most satisfactory results, which placed beyond doubt the usefulness of our method.

In regard to the question raised by Brucke and Virchow, that the addition of chloride of sodium is necessary for the production of crystals of hæmatin, our own examinations have taught us that such addition is quite unnecessary; unless, as Teichmann's most recent publication on this subject teaches, the blood be artificially deprived of its salts, in which case it is not in a condition to crystallize, and only regains this power by the addition of a granule of chloride of sodium. His experiments on this point we have found to be correct.

It was desirable, therefore, that this fact should receive its medico-legal consideration. Accordingly, we treated rags spotted with blood, in the same manner as Teichmann did the sediments of blood, and washing them repeatedly soon brought them to a condition in which their appearance was the same as the well-washed coagula of blood, and found that crystals were not produced, unless, before boiling, a granule of chloride of sodium or drop of a solution of any haloid salt was added. The question, therefore, if spots of blood, &c., might not through washing or other artificial means, by exposure to the action of rain, moisture of the soil, or even damp air, be so deprived of salts as to fail to exhibit crystals of hæmatin without the addition of chloride of sodium, is to be answered in the affirmative, and that in certain cases, as above described, such addition is indispensably necessary.

Possible Mistakes and Errors.—Professor Virchow remarks, that by treating a solution of indigo with concentrated acetic acid, he once obtained crystals resembling crystals of hæmatin, but distinguished by their blue color. This led us to examine carefully all red, brown-red, and yellow coloring substances, which are used for coloring garments, or which could possibly produce spots similar to blood spots. This examination comprised the following substances: murexide, alkana-root, gummi laccæ, kermes grana, lignum santalinum rubrum, cochineal, terra orleana, radix rubiæ, tincturæ lignum Pernambuci,

sanguis draconis, tinct. cardomi, tinct. rhei, liquor ferri, iron-rust, red ink, and cherry-juice.

They were treated the same as if examining for crystals of hæmatin, and of each two preparations were made, one with and one without the addition of chloride of sodium.

Of these, alkana-root, grana kermes, cochineal, terra orleana, lig. Pernamb., tinct. card., tinct. rhei, liq. ferri, iron-rust and cherry-juice, furnished not the slightest reason for being mistaken. In the preparations treated with chloride of sodium, numerous and differently formed crystals were present, but which, by their perfect loss of color, could alone be attributed to the salts added.

In the preparations from lig. santal. rub., rad. rub. tinct., red ink, gum. lac., sanguis draconis, (from the first three in all, from the last two only in those preparations in which salt had been added), single crystals were observed, which, by those inexperienced, might possibly be mistaken, but which, by the experienced, were plainly to be distinguished from crystals of hæmatin by their irregular form, sometimes needle-shaped and sometimes square, by their indistinct wavy outline, and especially by their loss of color. If individual colored specimens are observed among them, the color is plainly recognized to be only accidental.

Red ink prepared with alum and chloride of zinc, showed plain rhombic forms, but they were also colorless. But in any of these cases where doubts as to color arise, they may be dissipated by the use of chemical agents, or even simply by a little water, in which these crystals are readily and quickly dissolved.

Murexide offers more difficulty, for it forms, with and without acetic acid, crystals oftentimes much resembling crystals of hæmatin. The color of the evaporated liquid and its relations to reagents, however, will prevent mistake even here.

A solution of murexide, evaporated on a watch-glass with acetic acid, is light brick red, while that of blood is dirty brown red in color. Water dissolves the murexide thus evaporated with a purple red color, hydrochloric acid without color, and potash with a blue color; while crystals of hæmatin are not soluble in the first two, and in the last with a deep green color.

A mixture of murexide and blood evaporated with acetic acid in a watch-glass shows the residue less light red than with murexide alone, and lighter than with blood. By washing with water and hydrochloric acid the murexide is removed, and the crystals of hæmatin remain unchanged in the dirty brown-red residue.

In examinations of spots of blood, therefore, on red-colored substances, the possibility of mistaking crystals of murexide for crystals of hæmatin must not be forgotten.

Process in making Medico-legal Examinations.—In all cases in which the medical officer or physician is required to give his opinion or judgment, whether blood be present in dubious spots, presented to him on any object, garments, linen, wood, iron, or in liquids possibly stained with blood, in which a bloody knife, or clothes, &c., had been washed, the examination for crystals of hæmatin will enable him to arrive at a quick and accurate conclusion.

Spots on clothes, garments, wood, &c., are to be cut out or separated as much as possible from harder substances, by shaving or scratching, and it will be no disadvantage if parts of such substances are involved in the examination.

Spots on iron or steel are best managed by heating the part, when, if from blood, they will be exfoliated. Solutions intended to be examined for blood should be evaporated previously to treatment with acetic acid, lest the acid be rendered too dilute by an immediate mixture. If the objects to be examined are in isolated strips, a different method may be pursued. Fresh spots of blood, that is, those not older than a week or a month, and which have not been during that time specially exposed to destructive or discoloring external influences, give up easily on maceration in water a part of their coloring matter, and can be consequently examined in that manner. Older and partly dissolved spots of blood, however, are less acted on by water the older they are, and are therefore better macerated or boiled in acetic acid until the acid becomes plainly red or reddish. This latter proceeding is to be recommended as the proper normal one to be followed. Its only disadvantage is, that through its energetic action the acid extracts, besides the coloring principle of the blood, the other coloring matter contained in the substance examined, and thus sometimes gives a dark, untransparent, and consequently useless preparation. In such cases resort may be had to the more lengthy process of maceration. Boiling in acetic acid has the additional advantage that none of the material is lost or unnecessarily washed away, and that a quantity of the bloody substance, scarcely larger than a pin's head, is sufficient to give an indubitable result.

To the question, under what circumstances should chloride of sodium be added, it must be answered, that this is necessary whenever we have reason to suppose that the spots of blood, through exposure to external influences or otherwise, have been wholly or in part

deprived of their salts. In such cases as small a granule as possible should be selected and added before boiling with the acid. Subsequent addition is useless.

Value of the New Method of Examining for Blood.—It cannot be denied that it far excels in accuracy and usefulness any method hitherto used, and admits of giving correct opinions in cases in which it was formerly impossible.

On the other hand, it shares with those methods the great disadvantage of not being able to distinguish the blood of men and mammalia from each other, and even falls behind some in not distinguishing even the blood of birds, fishes, and amphibious animals, from that of mammalia.

It states nothing but the presence of a species of red blood, but that with such accuracy, and after the lapse of so long a time, that no other method of examination in this respect equals it. Every medical man knows the great advantage such a certain means of knowledge at times affords, and how it alone often suffices to point out the true path or give a sufficient reason for the commencement of a legal proceeding. If it were once known that a questionable spot originates from blood, a great point is gained, and a judgment may then be frequently corrected and perfected by further microscopical examination.

On the other hand, it may be asked, Of what value are negative results in examinations for crystals of hæmatin? From the known facility with which these crystals can be obtained, such negative results permit the conclusion that probably such stains or spots are not from blood, and nothing more; for the possibility that a spot may be after all a spot of blood, cannot be denied. It is known that spots of blood on garments, clothes, &c., become more discolored the older they are, and the more lightly and thinly they have been stained. But where there is no coloring matter left, no crystals of hæmatin are developed, and hence the negative result will have the greater force of proof the redder or more reddish colored is the spot examined. If the red color be produced by blood, we obtain crystals by proper treatment in every experiment.

An interesting Case of Typhoid Fever, with Hæmorrhage from the Lungs, Stomach, Bowels, and Kidneys. By CLINTON WAGNER, M.D., of the Baltimore Infirmary.

Randall Williams, negro, aged 26 years, entered the Baltimore Infirmary on March 4th, 1859; sick one week.

At the time of his entrance, he presented the following well-marked symptoms of typhoid fever: Pain in the right iliac region; tenderness upon pressure, and tympanitic distention of the abdomen; gurgling and diarrhœa. He also had cough; and, upon applying the ear to the chest, mucous rhonchi was heard in both lungs. His pulse was 84 per minute, and respiration 22.

He was ordered the following, as a stimulant expectorant:

℞.—Syr. Scillæ,
Syr. Senegæ, ää, ℥i.
S. Tea-spoon full every 4 hours.

He was also ordered the following, as a nervous stimulant:

℞.—Pulv. Opii, gr. ¼.
Gum. Asafœtidæ, pulv., grs. ii.
M. Ft. pill. S. Every 3 hours.

He also received wine and beef-tea freely.

March 8th.—During the past four days, but little change in his condition has been observed; to-day he was thought to be worse; prostration greater, diarrhœa ceased, pulse 82, respiration 20 per. min.; he was ordered the following:

℞.—Tinct. Ferri Muriat., gtt. xx.
S. Every three hours.

The pills were discontinued; wine, beef-tea, and other nutritious articles of diet were freely administered.

March 10th.—During the past two days he has been failing rapidly; to-day pulse 80, respiration 18 per. min.; had copious hæmorrhage from lungs and stomach; upon making an examination, it was discovered that there was dullness upon percussion over both lungs, but more extensive upon the left side; upon applying the ear, crepitant rales were heard in the upper portion of both lungs, evidencing effusion; to-day he was ordered:

℞.—Ol. Terebinthin. gtt. x.
S. Every three hours, alternating with iron.

On the 11th, he appears to be much weaker; pulse 84, and dicrotic; respiration 24; had a large hæmorrhage from bowels; his stools contained very little fecal matter, but consisted almost entirely of blood.

On the 12th.—To-day no better; pulse 112, and dicrotic; in addition to the hæmorrhage from his lungs, stomach, and bowels, there was a large amount of blood passed from his kidneys.

March 13th.—To-day he is much worse; pulse 152, and respiration 40; at times he is very delirious; the hæmorrhage from the several organs still continuing; fearing that the turpentine might possibly

assist in the hæmorrhage from the kidneys, it was discontinued, and he was ordered:

℞.—Ammon. Carb., grs. v.
S. Every hour.

A large sinapism was applied over the chest. Notwithstanding the powerful stimulants which were administered, the prostration increased, the hæmorrhage could not be arrested, and at half past five o'clock, P. M., he died, in a state of asphyxia.

A post-mortem examination held six hours afterwards, revealed the following changes: Congestion of the lungs, an ecchymosed condition of the stomach, a fatty degeneration of the liver, and alteration of a few of Peyer's Patches.

The Relative Frequency of the Various Presentations of the Fœtus. By WILLIAM C. ROGERS, M.D.

MESSRS. EDITORS—Having been engaged for a number of months past in collecting Midwifery Statistics for a special purpose, I send you one of the results of my labors, in the following Table of the Relative Frequency of the Various Presentations of the Fœtus:

Whole number of presentations	88,342
Head, (including "face to pubis," &c.)	85,210
Breech	1,754
Feet and knees	445
Funis, (the accompanying presentation not given)	219
Arm	83
" and head	38
" " and funis	9
Head and funis	57
Placenta	25
Face	299
Shoulder	69
Transverse	120
Sacrum	1
Back	6
Belly	6
Forehead	1

I have gathered these figures from the standard and periodical literature of the profession, and from my professional friends and correspondents. I regret that I did not note the number of twin and triplet cases, and other facts worthy of notice.

GREEN ISLAND, Albany Co., N. Y., *March* 17, 1859.

Anti-blennorrhagic Treatment of Baby.

[From the French, for the MONTHLY.]

Subnitrate of bismuth, associated with balsam of copaiva and cubebs, neutralizes the irritant effects which these medicines are accustomed to produce upon the whole digestive apparatus, and which makes their employment so difficult. The following formula is employed:

Copaibæ,
Pulv. Cubebæ,
Bismuthi Subnitrat., ää, grs. xxx.
Tinct. Ol. Menthæ. q. s. to flavor.

The mass should be thoroughly mixed. From 8 to 16 grammes are to be taken daily in unleavened bread. Thus prepared, this preparation is endured by the most delicate stomachs,—producing no eructations, no heat in the epigastic region, and no diarrhœa; so that the action of the medicines is concentrated on the urinary passages, and the desired results are obtained, more quickly and with less fatigue, by the patient.

At Saint Lazare, the women take this preparation without any repugnance, and with but rare exceptions it is always tolerated, even when administered for a long time. When copaiva and cubebs are given as capsules, it is advisable to give at the same time the subnitrate of bismuth, either mechanically suspended in water, or in the form of pills, but always in a large dose. L. H. S.

The Fumigatories of Boutigny.

[From the French, for the MONTHLY.]

The formula for the preparation of fumigatory powder is as follows:

Bisulphate of Potassa,	1 Eq. (55.69)
Nitrate of Potassa,	1 Eq. (44.31)
Peroxide of Manganese,	q. s. to blacken the mixture.

The articles are pulverized *separately*, and then mixed carefully. When fumigation is required, a shovel or some similar article is heated to low red heat at the fire, and a few grammes of the powder are thrown upon it; and speedily abundant vapors of nitric, hyponitric acid, &c., will be set free. This powder of Boutigny's, on account of its color and taste, cannot be mistaken for any of those substances which serve as food for man; its innocuousness allows of its introduction in all dwellings, and it is believed to be serviceable whenever it is necessary to have resort to nitric fumigations.

After the fumigation, Boutigny burns a slip of paper, which evolves a very agreeable odor. This paper is prepared as follows: One part of nitrate of potassa and two of sugar are dissolved in six parts of water,—paper which has not been sized is then plunged in this solution and dried.

Determination of Sulphydric and Cyanhydric Acids in Tobacco-Smoke. By VOGEL, Jun'r, and REISCHÆUER.

When tobacco-smoke is passed through an alcoholic solution of neutral acetate of lead, the abducting tube soon becomes very perceptibly blackened, and the white deposit of carbonate of lead, which is formed in the solution, also takes on a black color, which increases by degrees in intensity as the quantity of the smoke becomes more considerable. This black coloration is evidently due to the sulphide of lead. In order to separate this sulphide, it is only necessary to make the solution in which it is formed acid. It is then collected with care, washed with alcohol, and weighed. Its weight gives us the quantity of sulphydric acid that the smoke of the tobacco contains, on which we are operating. Vogel and Reischæuer obtained the following results:

3.4 gr. of Turkey Tobacco gave PbS=0.007
3.7 " " " " " =0.0075
3.0 " German Cigars " " =0.009.

Thus not only is the presence of sulphydric acid gas in tobacco-smoke incontestable, but the proportion is very appreciable, since it constitutes about $\frac{1}{500}$ of the weight of the tobacco experimented upon. The presence of this gas may also be detected by simply blowing the smoke on a paper moistened with solution of acetate of lead; there will be immediately produced a brown color.

The delicate reaction of the nitro-prussiate of soda may also be employed. If the smoke is passed through a solution of this salt, a little ammonia having been added to the solution, there is immediately developed a reddish violet color, which characterizes the reaction described by Playfair.

The sulphydric acid gas in tobacco must proceed from the action of carbon and hydrogen, as reducing agents, upon some sulphates, which tobacco always contains. This circumstance shows that, in the incineration of organic materials, there is always destroyed a small quantity of sulphates, which these contain in their normal state, and

that the estimation of the SO_3, from the ash, can never be considered as exact and absolute. These authors allege that of 100 parts of sulphuric acid existing in tobacco, 12.63 parts are set free in the smoke as sulphydric acid gas.

Vogel and Reischæuer have failed to find a cyanide, but they have been able to detect the presence of cyanogen itself, and of cyanhydric acid. After having passed the tobacco-smoke through a concentrated solution of caustic potassa, they diluted it with water and then filtered it. To the filtrate was added a mixture of a proto and a sesqui salt of iron, and it was then heated. Carbonic acid was discharged in abundance, and there was formed, at the same time, a precipitate of Prussian blue mixed with hydrated sesquioxide of iron. By treating this precipitate with chlorhydric acid, there was obtained pure Prussian blue.

To make a quantitative determination, the authors had recourse to the action of heat, which very perfectly accomplished the separation. The precipitate is collected on a filter, washed several times with warm water and alcohol, and then when dry, is found with its beautiful characteristic blue color. Two cigars, weighing together gr.10.6, furnished gr. 0.018 of Prussian blue; and two cigars, of another brand, weighing together gr. 8.5, furnished gr. 0.010 of Prussian blue. The proportion of this salt is comprised between $\frac{1}{600}$ and $\frac{1}{800}$ of the weight of the cigars; and as Prussian blue contains 54 parts in 100 of cyanogen, we see that the quantity of this gas in tobacco-smoke does not exceed a thousandth of the weight of the cigars experimented upon.

Among the specimens examined for the detection of cyanhydric acid, only one was found which did not furnish a trace of Prussian blue,—and this tobacco was very old. All the other specimens furnished notable proportions.—*Dingler's Polytechnic Jour.* L. H. S.

PROCEEDINGS OF SOCIETIES.

New York Pathological Society. Regular Meeting, Dec. 22d, 1858.

Prof. E. R. Peaslee, President.

[Reported for the Monthly, by E. Lee Jones, M.D., Secretary.]

Cancerous Disease of the Bladder and Sacculated Kidney.—Dr. Geo. F. Shrady presented a specimen of sacculated kidney for Dr. Bradford L. B. Baylies, of Astoria, with the following history: Patient,

from whom the specimens were removed, was a man, 55 years of age, who up to fourteen years previous enjoyed good health, he being of a robust constitution. At the time alluded to he was seized with a pretty severe attack of acute nephritis, which was alleviated by the usual remedies, though ever after he complained of more or less lumbago.

With the exception of these lumbar pains everything went on well enough until five years ago, when he noticed that a swelling of considerable size had formed on the right iliac region, attended with heat and a sense of fullness. About this time, also, he had copious hæmaturia.

Three months ago the irritability of the bladder was so great that he was unable to retain his water more than an hour at a time. The urine most of the time contained pus and mucus, with an occasional discharge of blood.

Dr. Baylies first saw the patient five weeks previous to his death. He discovered a soft, yielding, diffuse swelling in the right iliac region, and a tumor in the hypogastric region, which felt very much like the bladder in a distended state, although the bladder had been emptied previously by a catheter. Pressure over this region caused a slight sense of uneasiness, with pain at the end of the glans penis. Subsequent to this the patient complained of this pain in the glans penis quite frequently.

Towards the latter end of his life he began to lose flesh pretty rapidly. He suffered from complete retention of urine but once, about a week before his death, which seemed to be owing solely to the clogging up of the urethra with inspissated mucus, which was abundantly deposited from time to time. Continuing gradually to sink, he finally died delirious.

The post-mortem examination was made eighteen hours after death. The head was not examined. The lungs were healthy, with the exception of the presence of obsolete tubercles in the apices of each. The pericardium was unusually fatty. Heart healthy. Both of the ureters were distended to the size of the aorta, and much thickened, with evidences of inflammation of internal lining, most marked near the pelvis of each kidney. The left kidney was enlarged. The right kidney was found in a post-peritoneal abscess, which extended from the hypochondrium to the right iliac fossa of that side. The contents of this sac was found to be a muco-purulent fluid, mixed with urine. This abscess contained a pint, and communicated with the interior of the kidney by means of a small opening in the pelvis, which

was capable of admitting a crow-quill. The kidney itself was three or four times its natural size; the pelvis much distended, and capable of holding a goose-egg. The infundibula and calices were each dilated sufficiently to hold a pigeon's egg.

The bladder was found to be the seat of cancerous degeneration, as proved by the microscope, all over its posterior and lateral portions. The orifices of the ureters seemed to partake in the diseased action. The wall of the bladder in this situation was thickened to the extent of half an inch. The internal surface of the diseased mass was covered over with nodules about the size of a split pea. The rest of the bladder was healthy.

Gun-shot Wound.—Dr. L. A. Sayre presented a portion of the spinal column, showing the effect of a gun-shot wound of the cervical region. Wm. Scott, native of Liverpool, a laborer, aged 23 years, was admitted to the 1st surgical division at Bellevue Hospital, under charge of Dr. L. A. Sayre, Visiting Surgeon. On admission, June 13th, (Monday, 8½ A. M.,) the patient was found prostrated in an extreme degree—pulse 48, slow and irregular. He was sensible, and complained of pain in the back of the neck, and inability to move either hand or foot. His surface was natural; paralysis of both sensation and motion complete, from the toes up to the lower boundary of the cervical region, both anteriorly and posteriorly. Had a contused wound over the left eye one and a half inches long, extending upward and inward. Posteriorly in the cervical region, on the mesial line, about opposite the sixth cervical vertebra, was to be seen the opening made by an ordinary bullet; which, on passing in the probe, appeared to extend directly from behind forward. The probe, some distance into the wound, impinged upon bone, but it was uncertain as regards touching the ball. There had been no amount of hæmorrhage from the external wound. The patient rallied somewhat, and the respiration, which from admission had been entirely abdominal—15, and regular—remained unchanged; while it was found that the sense of feeling had increased, and on the mesial line of the chest extended to the tip of the ensiform cartilage; being normal as low down as a line opposite the mammæ, below which point to the tip of the ensiform cartilage, the patient first feels. The sensibility of the scalp and integuments of the face and neck were preternatural; and the patient was intolerant of the slightest pressure in this region, and wished the clothes placed over his eyes, which the light pained. As the cause of all this trouble the patient stated that he had been shot by a policeman, about 3½ A. M., when he immediately lost all sensation of motion and feeling, and

remembers only being brought to the hospital. Before his arrival, however, he had recovered all his special senses, and was conscious.

5 P. M.—Patient remains much the same as on admission. Has taken food and drink during the day. Priapism is marked, as it was from the first. Urine has to be drawn off.

Tuesday, 9 A. M.—Patient much the same. Drew off a quantity of bloody urine.

10.10 P. M.—Shows some symptoms of delirium; pulse full, strong, 90; tongue dry, and dryness increasing.

Wednesday, 9½ A. M.—Heat of body markedly increasing; pulse 110, and not so dry as has been; paralysis the same; bed-sores forming over the sacrum. Patient seems to be failing; drew off bloody urine.

Thursday, 9½ A. M.—Patient sinking; pulse 90, feeble and small; respiration 36, difficult and jerking; surface less heated; abdomen intensely tympanitic. Gave Labarraque's injection, which was not retained. Drew from bladder a very large quantity of really pure blood; bowels have moved spontaneously three times during the night; patient's whole condition indicating speedy death; unable to speak or swallow; continues to sink, and dies at 11.30 A. M., seventy-six hours after his admission.

Post-mortem Examination.—Friday morning, 9 o'clock, 21½ hours after death.

Cadaveric rigidity well marked; body well nourished; weather warm.

Examination of injury.—The ball passed through the soft parts between the laminæ of the fifth and sixth cervical vertebræ, exactly in the median line, breaking off the spinous process of the sixth, and encroaching upon the spinal process of the fifth cervical vertebræ; passed directly through the spinal cord, exactly in the median line; passing nearly through the body of the fifth cervical vertebræ, a little to the median line, and lodging just beneath the compact portion of the bone, which forms the anterior boundary of the vertebræ, breaking this portion of the vertebræ in such a manner that the ball could be seen beneath it.

Chest—left lung perfectly healthy; right, the same, very slightly adherent from old pleurisy; tissus otherwise healthy; heart healthy.

Abdomen—liver and spleen normal; kidneys congested, but tissues healthy. Bladder—extravasation of blood into the mucous membrane; everywhere excessively congested.

Stomach—mucous membrane marked slightly with ecchymotic spots. Intestines somewhat adherent from old peritonitis. Otherwise, both large and small, healthy.

Head.—On removing the calvaria, the vessels of the dura mater were found greatly congested. On removing the dura mater, marked evidences of recent inflammation were discovered· lymph in considerable quantities was found over both hemispheres, as well as at the base. The cut surface of the medulla oblongata showed evidences of inflammation. The lateral ventricles were considerably distended, and filled with a bloody serum. The whole brain was extra-vascular, and presented evidences of acute inflammation.

Necrosis of Tibia and Femur.—Dr. Sayre next presented two specimens of necrosis—one removed from the tibia of a healthy lad, which was the result of an injury six weeks previous. This exfoliation occupied nearly two-thirds of the whole extent of the tibia. The other specimen was about four inches in length, and was removed from the lower portion of the shaft of the femur, just above the knee-joint. This latter was eleven years in exfoliating. He thought that the specimens were interesting in reference to the extent of the disease in each, and the length of time required for the exfoliation.

In answer to a question from Dr. Harris in relation to the cause of bloody urine in the first specimen, Dr. Detmold stated that in all probability it was owing to the same condition of things that gave rise to the redness of the surface, a paralysis of the capillaries; that it was, in all probability, an exudation of the coloring matter; he was of the impression that no blood corpuscles were found in the fluid.

Dr. Peaslee remarked, that Dr. Brown-Sequard had made some experiments which had a bearing on this interesting case. He should say that the blood in the urine was due to the same cause as the general efflorescence on the skin, viz., to a congestion of the capillaries, generally resulting from the injury of the spinal cord. Dr. B.-S. had shown that a section of ½ of the lumbar cord produces congestion and elevates the temperature in the posterior extremity of that side, though the section of the white substance above does not. Here the gray matter of both halves was probably divided.

If there were blood corpuscles in the urine, there had, of course, been a rupture of the minute vessels of the kidney or bladder, or both, from their over-distended state. The efflorescence of the skin did not, however, extend over the upper part of the sternum, chest, and neck, since these parts are supplied by branches of the anterior cervical plexus, which rise from the cord above the seat of injury.

The hyperæsthesia of the whole surface supplied by nerves rising from the cord above the seat of injury, is not so easily explained. Dr. B.-S. found that the section of the entire white matter alone of

the cord does not destroy the sensibility of the parts below the seat of the section, thus showing that it is the gray matter of the cord which transmits sensory impressions to the brain. As the whole of the gray matter was here divided in the neck, all sensibility below was destroyed. Dr. P. could suggest no better explanation of the increased sensibility in the parts above the lesion of the cord, than that the irritation of the wound in the gray matter was transmitted to the brain; and thus, as it implicated the whole thickness of the gray matter of the cord, was referred to the sensient extremities of all the nerves, originating from the remaining portion of the centre, in accordance with a well-known law. This hyperæsthesia, however, as well as the efflorescence, might not always result from a similar injury; for Dr. B.-S. shows that the temperature is sometimes elevated and sometimes diminished, by alterations of the nervous system, in man and animals. But when the blood-vessels are dilated, the temperature is elevated; and when they are contracted, it is depressed.

DR. DETMOLD, in relation to the specimens of necrosis, thought that there was nothing remarkable in the extent of the disease and the time of separation, as compared with each other, from the fact that one was the result of an accident in a young subject, and the other was owing to constitutional disease in an adult. In the tibia the necrotic bone was nearer the surface; while in the femur, it was buried deep under the muscles.

DR. MINER asked, How much of sound bone was left after the separation of the sequestrum? The question was to him a practical one. He had a case of very extensive necrosis, the result of a compound comminuted fracture of the tibia, in which union had not taken place. The extent of dead bone was so great, that he thought he might be obliged to amputate.

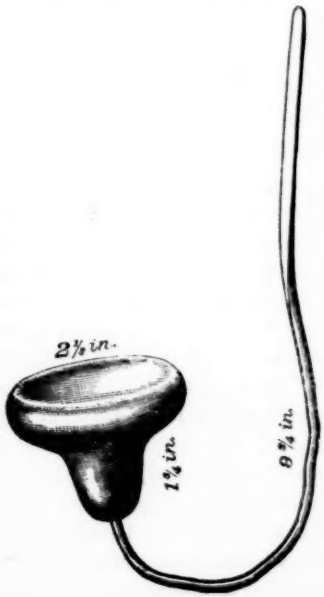
DR SAYRE stated that there was left in his case but a very small portion of bony tissue, which was evidently of new formation. That portion of the original bone which was left was covered with granulations.

DR. DETMOLD thought that there was no need of interfering in these cases as long as life was not endangered by hectic. The great object was, *not* to destroy the periosteum; as soon as this periosteum separated itself, it was proper to remove the dead portions. He did not think anything was gained by being too much in a hurry.

DR. PEASLEE recollected a case that forcibly impressed him with the fact, that nothing was to be gained by being in a hurry. It occurred in a boy, fourteen years of age, who had extensive necrosis of

one femur, which, in the course of time, complicated itself with fracture through the diseased portion. This having occurred, Dr. P. was sent for to amputate; he, however, concluded that it was best to wait. Moderate extension was kept up by means of a suitable apparatus; new bone formed in place of the dead material, which was in due time separated. He saw the case a year after, and the patient was able to get about comfortably with three-quarters of an inch shortening.

Large Foreign Substance Removed from the Uterus.—Dr. Sayre next presented a *wooden pessary*, which was delivered from the uterus a short time before. Four years ago the woman was delivered of twins; the first was by nature; the second, instrumental. After this she suffered from falling of the womb, for which she applied a circular pessary, which she wore up to last spring, when it was omitted. Six weeks ago she was troubled again with prolapsus. Two weeks ago last Monday, the instrument presented was introduced, which gave rise to a good deal of pain. The pain growing more and more severe, she called a physician a few days since, who found that the instrument had passed into the uterus itself. He made use of a considerable amount of force to remove it, but did not succeed; she was then sent to Bellevue Hospital.



After devising various means for its removal, the doctor, following out the idea suggested by its gradual introduction, thought that its gradual extraction was the safest and best plan. Accordingly, she was secured in bed, and an india rubber strap, fastened one end to a curved rod which was attached to the pessary, and the other to the foot of the bed. By gradual traction, in this way, in the course of 7½ hours, she was delivered. The patient was 42 years of age.

[This pessary was of box-wood, cup-shaped on its upper surface, two and one-eighth inches in diameter, and formed like a convolvulus, one inch and three-quarters deep, terminating in a cone, to which was attached an iron stem

nine and three-quarter inches in length, and curved so as to press upon the abdomen.]

He stated that it was the largest foreign body he had ever heard of in that situation.

In answer to a question from Dr. Miner, he supposed that the os was patulous to allow the passage of such a body.

DR. DETMOLD thought that the os being patulous, the sharp edge of the pessary pressed so long and steadily against it, in consequence of the arrangement of the steel rod attached, that it finally slipped in.

DR. SAYRE asked what was the largest body found in the uterus?

DR. DETMOLD stated that he had seen a large body, but it was merely a sponge. It seemed to have been inserted for the purpose of preventing pregnancy. He stated that there was a case recorded by Dr. Stone, wherein a patient with hæmorrhoids, in order to relieve the pain in the parts, sat upon a tin drinking-cup, as large in circumference as a good-sized tumbler, and the whole entered the rectum.

DR. SAYRE stated that he could, in many such cases, introduce both fists into the rectum with ease.

DR. PEASLEE closed the remarks by saying that, in the first place, we should consider that the uterus of a woman who had not had a child for four years, could not, in its normal state, contain a body half as large as the pessary in its cavity. The whole organ must, therefore, have been very large, and we have reason to assume, said he, that the os was so also, and very probably patulous. This being admitted, he did not see why the pessary might not dilate the os like a compressed sponge. The fact that pain followed its introduction, rendered it probable that the instrument was not properly applied. With this view of the case, Dr. P. saw no difficulty in adopting Dr. Detmold's explanation of the case. He would, however, like to know from the practitioner who applied it, if the os was not very large and patulous. He thought the cavity of the uterus was three or four inches long.

Necrosis of the Neck of the Humerus.—DR. CHARLES K. BRIDDON presented a specimen of necrosis of the external lamina of the internal aspect of the anatomical and surgical neck of the humerus, with the following history:

Elizabeth Luer, aged 17 years, apparently healthy, and free from acquired or hereditary taint, received an injury in the vicinity of the shoulder-joint, two years ago; she was standing on a ladder and fell, her shoulder coming in contact with an iron stove. Much suffering followed this injury, which was treated as a dislocation, without re-

lief; on the contrary, the manipulations for reduction were followed by severe pain and inflammatory swelling, which lasted three months, when she took cold, had her menses suppressed, and all the local symptoms aggravated; the arm, forearm, and hand became immensely swollen, tense, and painful; an abscess, formed on the inside of the arm, opened spontaneously and closed. At this time she entered the Trenton Hospital, where she was treated by various forms of counter-irritation. A second abscess opened in the site of a cicatrix where a seton had been worn, and this degenerated into a fistulous tract; the swelling subsided, but the limb remained painful and useless, and the fistulous opening continued to discharge freely.

At the time she came under observation, the 7th December, her condition was as follows: Her general health good; the right forearm was well proportioned and not more wasted than its fellow; there was an amount of flattening below the acromion, due to atrophy of the deltoid. On the internal or axillary portion of the upper part of the arm there is a considerable mass of ossific deposit; two inches below the posterior fold of the axilla there existed a fistulous opening, through which a probe passed obliquely upward, forward, and inward to the extent of four inches, and then came in contact with dead bone, conveying the idea of the existence of a central necrosis. The motions of the shoulder-joint were almost abolished, the arm could be abducted about two inches; further abduction rotated the scapula on its own axis; the movements of rotation were also limited.

The *operation* was made on the 10th December. An incision, five inches long, was begun two inches below the acromial process, and was carried in the direction of the axis of the humerus. The periosteum and soft parts were detached freely on both sides; the line of incision disclosing, not involucrum, but the expanded and irregularly roughened humerus itself. A probe introduced at the fistulous opening in the soft parts passed through a similar canal in the posterior, internal aspect of the bone, and appeared to pass towards its anterior and internal portion. A greater portion of the upper fourth of the bone immediately below the tuberosities had to be gouged away before a cavity was disclosed, and with a view to maintaining its continuity and the integrity of the insertion of the pectoralis major and the bicipital grove. The gouge was mainly applied to its outer and posterior aspect. The opening into the cavity was enlarged, and the sequestrum was removed entire; it was small, and apparently consisted of the external lamina of the internal portion of the surgical and anatomical neck. No other bone was detected, but the finger

introduced into the cavity came everywhere in contact with a soft granulating surface, the inner wall of which was separated from the axillary artery and its associates by involucrum; the wound was made to granulate, and the patient has so far made the best progress.

Vessels of the Neck, after Ligature of the Carotid.—DR. BRIDDON presented a specimen of the vessels of the neck, exhibiting conservative processes fifteen days after the application of a ligature to the primitive carotid.

The patient from whom this specimen was procured was a colored woman, aged 40 years, suffering from malignant disease of the orbit. The operation was done on the 7th of July. On the 8th the patient was comfortable, and only complained of difficult deglutition. On the 9th this difficulty of swallowing was unabated, and the patient was annoyed by cough; physical exploration of the chest elicited nothing abnormal. On the 10th the cough was less troublesome, and the deglutition less difficult. On the 17th the patient began to exhibit nervous phenomena, which appeared to indicate impaired nutrition of the cerebral nervous centre. The symptoms were clonic muscular spasms, great weakness, tremblings, deafness, without any marked paralysis. The spasmodic movements were so severe that her attendants expressed their fears that they would throw her out of the bed; her faculties became blunted, and these various nervous exhibitions gradually increased until the 22nd, when the patient died whilst her attendant was sleeping. I saw the body before it was disturbed, and should judge from its contorted condition that the patient had died during a convulsive movement.

Autopsy was made twelve hours after death. On removing the calvarium, nothing abnormal was recognized; there existed strong and apparently old adhesions between the visceral and parietal arachnoid, at the base of the middle lobe of the brain, on the left side; the intra-cranial portion of the internal carotid of the left side was smaller than its fellow, and the left vertebral was enlarged to nearly twice the size of the right; the brain was carefully examined, but no appreciable softening existed in any portion of its structure; the left hemisphere was apparently as well nourished as the right; the punctæ vasculosæ were as numerous on one side as the other; the ventricles contained each about a drachm of fluid. On examining the orbit, no growth was discovered proceeding from its walls; the periosteum, lining the outer wall, was thickened, more vascular, and more easily detached than elsewhere; the lachrymal gland very considerably enlarged, lobulated, and apparently undergoing structural change; it reached to the spheno-maxillary fissure.

Examination of Vessels of Neck.—The artery, with its associate vein and nerves, were removed, with their sheath; the ligature was not separated; a firm solid clot occupied the proximal side of the ligature; another, loosely adherent, occupied the internal carotid at its origin; a layer of coagulated blood, not more than a line in thickness, occupied the *cul-de-sac* on the distal side of the ligature, which had nearly cut through the apparently occluded vessel; the vagus nerve was imbedded in, and appeared to be spread out by the pressure exerted upon it by the fibrin effused around the seat of ligature, and a fine net-work of small vessels carrying red blood ramified over it at the same point; the noni nerve was in a similar condition, as regards the vascularization.

Rent of Diaphragm—Heart on Right Side—Stomach, Omentum and Intestines in Cavity of the Chest—Rupture of Pleural Membrane.—Dr. Miner next gave an account of a very interesting post-mortem examination that he had made a short time before.

The patient, a young man of irregular habits, dosed himself with salts, which produced free evacuation, with vomiting. This state of things was soon followed by collapse and death.

At the post-mortem the doctor noticed that there was emphysema of neck and face. On raising the sternum, a very curious state of things presented themselves. The lung very much compressed, and crowded into the upper portion of the cavity of the pleura; the heart was pushed over to the right side; there was a rent through the diaphragm about four inches long, through which a portion of the stomach, large intestine, and omentum escaped into the chest. The stomach was also ruptured inside of the chest. None of the contents of this organ escaped into the abdominal cavity. He thought that the emphysema was due to rupture of the pleural membrane, allowing air to escape into the cellular tissue underneath. He thought, on the whole, it was a very extraordinary case.

Dr. Krakowitzer said there was such a case reported in the Dec. number of the *Lancet*. The hernia in that case was of a couple of years' duration.

Dr. Finnell had presented a case of hernia of diaphragm to the Society some two years ago. It occurred in a negro, who had been beaten and died after a few day's illness. The stomach occupied the right pleural cavity. There were two false passages. There had been reported thirty or forty similar cases.

Dr. F. thought that this hernia of diaphragm existed from birth, and that, on the sudden application of violence, the abdominal organs were forced through.

DR. MINER stated that in his case he thought that the hernia was the immediate result of the strain of the muscle in the act of vomiting.

DR. PEASLEE thought that the rupture might be due to the presence of fatty degeneration.

REVIEWS AND BIBLIOGRAPHY.

A Treatise on Human Physiology, designed for the Use of Students and Practitioners of Medicine. By JOHN C. DALTON, JR., M.D., Professor of Physiology and Microscopic Anatomy in the College of Physicians and Surgeons, New York, &c., &c., &c. With two hundred and fifty-four Illustrations. Philadelphia: Blanchard & Lea, 1859.

A new elementary work on Human Physiology lifting up its voice in the presence of late and sturdy editions of Kirke's, Carpenter's, Todd and Bowman's, to say nothing of Dunglison's and Draper's, should have something superior in the matter or the manner of its utterance, in order to win for itself deserved attention and a name.

That matter and that manner, after a candid perusal, we think distinguish this work, and we are proud to welcome it not merely for its nativity's sake, but for its own intrinsic excellence. It is the first American work of its kind which, like those emanating from Bernard or the French school—from whom, indeed, it takes its inspiration—teaches physiology more from a material than a transcendental point of view. With it as with them, facts have a higher potency than formulæ, and in the finding of new facts, in the testing of old, and in determining their true value and place; or, in other words, by observational and experimental study only, is knowledge of the phenomena of life to be advanced. That this path leads through no barren region, the results gathered in and illuminating this work fully evidence.

And now first, as to its manner. Its language we find to be plain, direct, unambitious, and falling with a just conciseness on hypothetical or unsettled questions, and yet with sufficient fullness on those living topics already understood, or the path to whose solution is definitely marked out. It does not speak exhaustively upon every subject that it notices, but it does speak suggestively, experimentally, and to their main utilities. And herein, we think, consists the peculiar merit of the work, not so much or merely for its facts or conclusions,

as the manner in which it works up to and teaches them. In the spirit of independent inquiry it thereby tends to initiate and improve in the mind, we think we see more of promise for the science than if it had been a cyclopædia upon the subject.

Scattered through and enlivening the volume are two hundred and fifty-four illustrations, all but eleven of which are said to be from original designs. To many this will be one of the most attractive features of the book, and it certainly is with no regret we miss some of the old familiar figures that kept turning up so persistently and indelibly in the pages of almost every new American reprint. It is something even to look upon a new grouping of blood-cells, a new range of villi, a new outline to the bowl in which the coagulating clot is pictured, a new distribution of the facial nerve or a new curve in a spermatozoon; but still, unless making full and clear what else would be deficient or obscure, or better defining what previously has been well portrayed, we see nothing in the mere fact of novelty to render them exclusive, nor any reason why more than eleven designs, if from established magisterial sources, might not have been properly and profitably incorporated in the work. All that we mean by this remark is, that new designs can neither have, nor claim, peculiar precedence or merit merely because they are new.

And now, what we have to say of the matter of this work can only take the form of a running notice, which must necessarily be as brief as it will be imperfect.

With a few preliminary considerations about the mode of study, and fewer still upon the usual introductory scholastic themes of life and vital force, and vital properties, and vital stimuli, our author divides his subject not very naturally or scientifically, but perhaps conveniently, into these three distinct sections:—1st. All that relates to the nutrition of the body. 2d. The phenomena of the nervous system; and 3d. The process of reproduction.

In the study of nutrition, he begins with that of the proximate principles entering into the composition of the body or its food, and which are defined to be substances, simple or compound, chemically speaking, which exist under their own form in the animal, solid or fluid. These principles are divided into three classes—the first of which embraces substances inorganic in their nature; the second, crystallizable substances of an organic nature, which in other books are sometimes termed the non-nitrogenous; and third, organic substances proper, otherwise known as the nitrogenous or protein compounds. He who learned the names of these compounds a dozen years ago will find

some new acquaintances included here, such as pancreatine, mucosine, osteine, cartalagine, muscaline, melanine, biliverdine, urosacine, and will look around in vain for gelatine and chindine, and some others. Old fogies that they were, they must needs go under.

No full or perfect list so far as yet completed, is given, and only the most prominent of these proximate principles are referred to in the text—an exclusion which some anxious dietetic reader might wish supplied, when he finds among the remarks that follow upon food, the statement that, for the due nutrition of the body, no single proximate element or even class of them alone is sufficient, but substances from all the groups are necessary, and that starvation may follow just as surely from deprivation of the salts of lime and soda, as of oil or albumen.

The chapter on digestion is extremely interesting, both from the nature of the subject and the admirable manner in which it is discussed. Through comparatively modern research, truer and more definite ideas of this process have been gained, and this important characteristic established, that different digestive fluids in different parts of the alimentary canal are concerned in the digestion of different elements of the food. These fluids, five in number, are the saliva, the gastric juice, the bile, the pancreatic fluid and intestinal juice.

The starchy reputation of the first is gone. Though saliva has a curious catalytic power of converting boiled starch into sugar, yet such is no longer deemed its physiological function. When the mouth waters now, it does so merely to moisten or to lubricate the food.

The gastric juice, first decisively experimented upon by Beaumont, has since his time, by aid of gastric fistulas established in some of the lower animals, been still further studied. Among the names of those who have made a happy use of these convenient means, our author's has its place.

The free acid found in gastric juice, now seemingly established as lactic acid, and that organic matter, known as pepsine, are both important ingredients, and essential to its constitution. Among the singular properties of gastric juice is its inaptitude for putrefaction, and that when mingled with bile it loses its digestive power—a fact not without significance. Gastric juice affects but a single class of proximate elements—the albuminoid substances; and these it not only disintegrates, but liquefies, and by catalytic action converts into a new substance called albuminose, which, when present, is found to have the peculiar property of interfering with Trommer's test for grape-sugar, and also with the mutual action of starch and iodine.

It is an interesting question how much gastric juice our stomachs daily secrete. Sufficient data have been obtained to throw this question into an almost soluble proposition. Thus, if the stomach of a dog secretes thirteen pints while digesting one pound of beef, how many pints would the stomach of man secrete during a like operation? In working out the answer to the last term, even if the mind does not get it decimally exact, it well perceives the enormous quantity necessarily exhibited each day, and which is only to be explained upon the principle of revolving processes—that of continued reabsorption following hard upon secretion.

The place for the digestion of the starchy elements of the food seems fixed in the small intestines, and the agents that accomplish it, the intestinal juice from the glands of Brunner and the follicles of Lieberkuhn.

The pancreatic fluid, though capable of converting starch into sugar, has assigned it a special duty above the bile or other fluids, to meet, disintegrate, and emulsify the fatty matters of the food. Hence this process of digestion—this preparation of the food for absorption, is found to be not a simple, but complicated affair; not confined to the stomach alone, but progessive down through the whole track of the small intestine.

The little villi, with their blood-vessels and lacteals pushed about and stirred up to greater activity by each peristaltic movement of the intestines, are the busy agents in the process of absorption. These two sets of vessels, however, have each their preferences as to what they carry into the circulation. Thus, the lacteals only, but not exclusively, take up the oily matters of the food as chyle, while the blood-vessels, although partly sharing with them this labor, are mainly burdened with albuminose and sugar. Once absorbed, these nutritive materials pass, by catalytic transformation, into other forms, and become assimilated to the pre-existing elements of the circulating fluid. Before starting with them on their rejoicing round, two preparatory and perfecting processes are noticed: the secretion and reabsorption of the bile and the glycogenic action of the liver.

The subject of the bile is studied as if *de novo*. Although enumerated as one of the five digestive fluids, it turns out upon examination to have no particular digestive function, but, from circumstances and experiments, would appear to be simply an excrementitious fluid, and yet its secretion and discharge into the alimentary canal are found necessary for the maintenance of life. What is then and there its office is not so plain. Perhaps it lies hid behind some convenient

catalytic cover. Of its disposition, however, there is little doubt; it is reabsorbed.

Bernard's notable discovery of the sugar-making function of the liver is well developed and detailed.

The spleen takes its place as a gland without an excreting duct, and modifies in some undiscovered way the constitution of the blood that filters through its tissues. Two singular effects are noticed to follow its removal in the lower animals—an increase in the appetite and the temper, both of which become unnaturally fierce.

The blood itself comes next. The red and the white globules no longer dot the field of the microscope as cognate forms, but appear distinct as different colored roses. They merely mingle side by side, but never blossom into each other. Neither are they, any more than other anatomical forms, destroyed and renovated, but their proximate principles only, through this process of nutrition.

Following the steps of our author, who chooses to advance by processes rather than by functions, we come to respiration. Two sets of movements accompany the act—the one of the chest, the other of the glottis. Two sets of changes also follow it—one in the air passing over, and the other in the blood passing through the lungs.

By the first the air loses oxygen, gains carbonic acid, a little extra nitrogen, a faint animal odor, and gets loaded down with the vapor of water. By the second the blood gains in oxygen, and in losing carbonic acid and water, loses its dark venous color, and becomes, as it is called, arterialized. The lung is no longer a laboratory for the chemical combination of the gases of the air and the blood, but a mart rather, for their reciprocal interchange. The oxygen in a state of solution, and principally by the blood globules, is rolled off freely down the arterial highways, while the carbonic acid comes lumbering up the venous tracks in the same state of solution, and by the same conveyances. Where is this latter formed? Not in the lungs alone, but in the blood also, and tissues mainly. What is its origin? Not the oxydation or direct reunion of the oxygen with the carbon of the tissues, but the decomposition rather of organic tissues, of which, perhaps, it is but one of the residuary products.

Since Lavoisier's time, when it was thought we carried our heaters in our breasts, the subject of respiration has been intimately associated with that of animal heat. Liebig powerfully extended this idea, but we are glad to find his wasteful notions, that would consume so much of our tissues and our food, merely to keep us warm, are giving way before a new and improved method, that attains the same result,

through the chemical combinations and decompositions, solutions and dissolutions, actively and incessantly going on in the body during the process of nutrition.

It is a relief to think we are not yet burning up.

The blood is the fluid vehicle by which the substances produced in the particular organs are transported and exchanged throughout the body, to be perfected, incorporated, eliminated or expelled. The heart, the arteries, the capillaries, and the veins are its circulatory apparatus.

The heart, with its spiral fibres, lifting up its apex, and elongating its ventricles, as these contract to drive through pulmonary and aortic openings the blood received passively and perforce from the auricles, has a motion peculiarily its own, and which it is acceptable to find was best described by Harvey himself, two hundred years ago. The sounds of the heart—the second of which has so long had a combination cause—are both assigned a valvular origin; the first is usual to the closure and tension of the aortic-pulmonary, and the second altogether to the closure of the auriculo-ventricular valves. The arterial circulation is not a simple phenomenon, but the result of two different physical forces—the elasticity of the arterial walls, and the alternating contractions and relaxations of the heart. The veins continue to pass along their contents by the aid of such expansion of the chest, such contraction of the voluntary muscles, and especially by aid of the *vis a tergo* of capillary circulation.

Although, when looked at in the field of the microscope, this latter circulation seems surprisingly spirited and active, yet it is, in fact, considerably less rapid than that of the arteries or the veins. The force that regulates it is a local one, which that action of fluids known as endosmosis and exosmosis, doubtless truly expresses, if it does not clearly explain.

And so the blood gets round. Not indeed in a direct, simple, and continuous circuit, nor with uniform rapidity, but dallying sometimes longer in one organ than another, whirling around a while, in some near eddy to the heart, to be soon returned, and sent to one more remote; now bearing oxygen to distant tissues; now exhaling in the lung the carbonic acid, which it has accumulated elsewhere; supplying here a fluid secretion; transuding there, on its passage through one set of capillaries, substances to be fashioned into cartilage or bone, and through another set, substances to become, by catalytic action, muscles, nerves, or gray matter of the brain; and thus, only after a busy bartering-time, does it finish up its round. That process of

glandular exaction it suffers in its course must not be forgotten. The act is called secretion, the product *a* secretion. Each gland turns out its own peculiar work, as the lachrymal the tears, the mammary the milk, and never acts vicariously for another gland. Ten of these secretions used in the different physical and chemical actions of the body are mentioned. Five classes as digestive fluids have been referred to; five remain, to wit: mucus, sebaceous matter, perspiration, the tears and milk. We cannot stop to study them, nor ask for more about perspiration ducts that only keep us cool, and that traditionary bug-deterring matter, which the ceruminous glands of the ear so prudently secrete. We cannot even stop to think why secretions from other glands whose consideration is deferred, have not as systematic a right to be considered among the ten as milk, but pass to the last division of the great nutritive function, the process of excretion.

Through the constructive and destructive assimilations—the growth and decomposition incessantly going on in living organisms—certain useless products no longer exhibiting vital properties, nor capable of further vital functions, are left as waste remainders. They are the wear and tear of the body's elemental transformations, and destined as excrementitious substances to be removed. Their production, their absorption by the blood, and their final elimination, make up the vitally important process termed excretion. Eight of them are given: carbonic acid, cholesterine, urea, creatine, creatinine, water of soda, water of potass, and urate of ammonia The first has been already alluded to. The second, originating in the brain and spinal cord, is conveyed by the blood to the liver, and discharged with the bile. The remaining six are all ingredients of the urine, the consideration of which closes, in an interesting manner, this chapter, and the first great division of the work—to wit, the process or the function of nutrition.

The phenomena of the nervous system fill up the second great division. We are sorry that space will not permit us to run, at least cursorily, through this, as we have done the section that precedes it. A general glance and a general judgment must suffice. The parts devoted to the pneumogastric nerve and the system of the great sympathetic are full of strong and inviting points, but aside from these it does not seem to us as if our author deals as fairly or as intimately with this as with the other two divisions of his work. It may be but a little thing, indeed, to find Bernard's name quoted on some petty point of reflex motion in a strychnine-poisoned limb, and his who first discovered and made known the laws that govern this important

kind of action presided over by the spinal cord, not once alluded to; but might not this system itself, elaborately unfolded, have well supplied the place of what some might deem by-gone topics, and matters too elementary for the character of the work?

Into the subject of Reproduction our author plunges with a kind of loving spirit. Throughout this interesting and obscure department he is a clear and admirable teacher, sometimes a brilliant leader.

In the pages of the work we have been traveling over, occasional practical suggestions or deductions from the matters of the text are to be met with. We do not quarrel with these refreshments by the way; but, having given any, might not their number have been increased?

One other final remark. We would not dispute with the publishers of this work concerning what after all may be only a matter of taste, but we cannot reconcile it with our notions of the beauty or fitness of things to have forced upon us, under such a healthy title as Human Physiology, eighty such morbid-looking pages in the shape of a catalogue as the covers of the book we are now closing contain. L.

The Transactions of the American Medical Association. Vol. XI.

[CONCLUDED.]

The Report "On the Influence of Marriages of Consanguinity upon Offspring," by Dr. S. M. Bemiss, of Louisville, Ky., touches upon a very important matter, concerning which it is time that the profession were qualifying themselves to speak with authority derived from knowledge. The frequency of the occurrence of these connections; the general opinion of the community, or at any rate of the profession, against them, and the strict rules of the Mosaic law which forbid the nearest of them, all make the subject of this paper one of unusual interest.

The whole report occupies somewhat more than one hundred pages of the volume, of which all but twenty, more or less, are occupied by statistical tables. Some of the interesting items which we notice in the report are these:

The author believes this to be the first extended attempt to obtain accurate statistics upon the subject. "Eight hundred and seventy-three observations of marriages of consanguinity are arranged on the table."

Of these, *ten* cases are of incestuous intercourse between brother

and sister, or parent and child, while *twelve* are between uncle and niece or aunt and nephew. Parental infirmities are entailed with great certainty upon the offspring. Deaf-dumbness, blindness, idiocy, insanity and scrofula, seem to be the legacies most commonly transmitted to children, or those to which the children of relatives are especially subject. The author is satisfied that over ten per cent. of the deaf and dumb, and over five per cent. of the blind, and near fifteen per cent. of the idiotic in our State institutions and throughout the country at large, are the offspring of kindred parents, or of parents themselves the descendants of blood intermarriages.

The "Report on the Functions of the Cerebellum" is by E. Andrews, M.D., of Chicago, Ill., and is the result of inquiries in comparative anatomy; the subject not being complete without a further report, which the author evidently intends to make. The propositions supported by the reporter are as follows:

"1. In the warm-blooded animals, the median lobe, or vermiform process of the cerebellum, varies in size, directly as the bulk and power of the anterior group of muscles.

"2. The lateral lobes vary in like manner as the power of the posterior group of muscles; subject, however, to certain variations hereafter to be mentioned."

Towards the close of the report, the following sentence occurs, and sufficiently exposes the author's doctrine, so far as it has been developed by this paper: "It seems to me, therefore, that, while it may be true that the mind, through the cerebellum, co-ordinates motions, it does not do so because it possesses a specific function of co-ordination, but simply because its action is directly *excito-motor*, and the mind through it can select any muscle or set of muscles it may choose for action."

There are eighteen wood-cuts illustrating the paper, most of them being original, though several are from M. Serres' "Anatomie du Cerveau."

Dr. Mark Stephenson, of New York, is the author of the next paper, "On the Treatment best adapted to each Variety of Cataract." It is accompanied by five colored drawings, illustrating the process of absorption of the lens in a child who was operated upon for traumatic cataract. Dr. S. contends that there is no occasion to repeat the operation, as is frequently done, and this case is given to show the results of a single operation. Unfortunately it is not complete, the patient having passed from the author's observation while the absorption was still imperfect. The paper is a pleasant discussion of the various methods of treating the disease which is its topic.

There are two papers (one, that which next succeeds and the other following the next two reports,) which may properly be spoken of together. The first, by Dr. C. B. Coventry, of Utica, N. Y., is entitled a "Report on the Medical Jurisprudence of Insanity." The second, by Dr. D. M. Reese, of New York, is a "Report on Moral Insanity." Dr. Reese's paper is the result of the James Huntington trial, and we are not certain that the other is not also. At the time of that trial it will be remembered that the defence set up the plea of moral insanity, supporting it by the opinion of two eminent physicians. Much attention was drawn to the case, which had before become notorious, and the opinion of the medical witnesses were peremptorily challenged by many members of the profession. So far this was well enough. Differences of opinion on doubtful cases of insanity may readily exist, and are entirely compatible with the most honest efforts to ascertain the truth. But a portion of the profession denied the existence of any form of insanity which might properly receive the name of "moral insanity." Others, unwilling to go to this length, denied that it was possible for "moral insanity" to exist alone, but alleged that it must be accompanied by more or less of insanity in less obscure forms. Of these latter classes Dr. Reese assumed the championship, and dealt many, if not always weighty, blows upon the medical experts, and all who believed in the existence of moral insanity. It was not unnatural, then, that he should be called on at the next succeeding meeting of the Association to give his views of this subject. The paper embodies those views.

Dr. Coventry's paper is on the more general subject of the medical jurisprudence of insanity in its various forms, and of course devotes much less space to the special subject of *moral* mania. Still, what is said of it is so much to the point, and is so evidently the work of one familiar with the subject, that it may properly be compared with the more extended paper of Dr. Reese.

In such a comparison we give a very decided preference to Dr. Coventry's doctrines. They are those to which it seems to us any one must arrive who studies the subject carefully, without bias, without any foregone conclusion before entering upon the investigation, and with the sufficient access not only to *books*, but to *patients* on whom observation may be made. Dr. Reese is evidently frightened, in part for theological reasons, from assenting to the general views of the best authorities upon the subject. He is anxious about his doctrine of moral depravity, and makes several quotations from the Scriptures, which seem to us most inapt and irrelevant.

But this is the usual ground on which objection is made to the distinction of moral mania. Theological dogmas are invaded, it is supposed, or some such danger is apprehended. But Dr. Reese also sees in this doctrine an offshoot from that root, phrenology, which his soul abhors—and hence another reason for his dislike of it. He is no more crossed in this than in his other objection, but he more or less waxes warm on it. He may be said to be driving two hobbies on this subject, and they have run away with him.

To argue the whole matter here is impossible, neither is it necessary. The distinction, as made by writers on, and experts in insanity, is a good and correct one, and it becomes those who have not made this point a careful study, not only in theory but practically, to listen with some respect to those who have made it a life's study.

But Dr. Coventry's paper treats of other points in connection with insanity, which are of great and of general interest. Among these may be enumerated, the tests of insanity; the plea of insanity in criminal cases; when it becomes a subject for the courts; when it is a proper ground for depriving a person of his liberty, or of the care of his property, or of the disposal of it by will; its relations to crime; feigned insanity, and experts in court. The paper is, in short, full of good advice, of sound discrimination and valuable suggestions, abundantly repaying one for a careful study of it. We only regret that we cannot make large and copious extracts from it.

There are, between the two papers on insanity which we have been discussing, two other papers, the first being on the registration of births, marriages, and deaths, by Dr. Edward Jarvis. It constitutes a very good synopsis of what has been done in registration in this country, and expects to do better things. But the second paper is much longer and more elaborate. It is written by Dr. Campbell, the topic being the "Nervous System in Febrile Diseases," and was noticed at length in the April number of the MONTHLY.

Resuming the regular sequence of the papers as they stand in the volume, we reach a report on *Stomatitis Materna*, by Dr. D. L. M'Gugin, of Keokuk, Iowa. The prevalence of this disease in the North-western States, as well as in many other parts of the country, and its entire absence from other sections, cause it to be true that, while it is frequently treated by some, many other practitioners of large experience have seen it rarely, or not at all. The author's recommendations are judicious, though we have found more relief to be afforded by the use of astringent mouth washes than seems to have been his experience. These are not, of course, curative, but are use-

ful palliatives, enabling the patient to take nourishing food, a most essential thing in this disease. Myrrh and cinchona, in equal parts, often afford much relief in this way, adding greatly to the comfort of the patient. A watery preparation has to be used, as the alcohol of tinctures does harm.

Whatever is written on medical topics by Dr. J. B. Flint, of Louisville, Ky., is worth reading; and, it may be added, that it is usually entertaining. His report on the true position and value of operative surgery as a therapeutic agent is no exception to the rule. The ideas illustrated by the report are well summed up in the propositions which we quote below, regretting only that there is not space at our command to make extracts which should give more of the life and spirit of the report.

"1. The true position and real dignity of all therapeutic agencies are the same, determined by intrinsic and not accidental considerations; and operative surgery has no rightful pre-eminence, in this respect, over other sections of practical medicine.

"2. There are *pseudo-surgical*, as well as *vero-surgical* operations—the latter being such only as are undertaken with a therapeutic purpose and *probability;* and if any of these confer more distinction upon him who performs them, than others, they are such as are most eminently beneficial to the subject of them.

"3. Of this character are not, in general, those which constitute the staple of what we have termed 'dramatic surgery,' denominated also 'heroic' or 'exploital' surgery; and these performances, therefore, should be scrutinized very carefully before they are reckoned among the legitimate agencies of our art, or allowed to become the criteria of professional ability or merit.

"4. The fascinations of 'dramatic surgery' are dangerous to professional morality and mischievous to society, and we should endeavor to replace them in ourselves and the public, by just and rational views of the operative proceedings of our art.

"5. Under the designation of 'conservative surgery,' there is at present an endeavor at reforms in operative surgery, which commends itself, most urgently, to the co-operation of all wise and conscientious practitioners."

The next report is brief, and yet of sufficient value for us to present it entire. It is entitled "A Method of Preserving Membranous Pathological Specimens," by Dr. R. D. Arnold, of Savannah, Ga.

"The specimen is well washed in cold water; it is then cut, so as to be stretched upon a pane of ordinary window-glass. The side to

be applied to the glass is to be lightly sprinkled with arsenic. The free surface is to be thickly powdered with arsenic, and the specimen is then to be kept in the shade, and, as the arsenic becomes absorbed, more is to be sprinkled on, until it becomes dry. After that, a coat of white varnish is put over the whole.

"I present for inspection specimens from two different subjects of the morbid lesions of typhoid fever. One set was prepared in July, 1855, now nearly three years since. The second was prepared about three months since.

"Last summer I prepared thin slices of a cirrhosed liver in this manner, and had every reason to believe this method might be applied successfully to parenchymatous specimens, as well as to membranous ones. Unfortunately, they were taken away by some person unknown to me.

"The specimens presented are those of the lesions of typhoid fever, and were prepared in the following manner:

"The intestine was cut on its omental edge, then washed; a little arsenic was sprinkled on its peritoneal surface, and it was then stretched on the glass, the peritoneal surface being placed next the glass, and the mucous membrane being external. It was then treated as pointed out before."

An unimportant letter from Dr. Fenner, of New Orleans, closes this portion of the volume, there remaining only two papers, the prize essays, both of which demand a separate and elaborate discussion. The topic of the first is, "The Clinical Study of the Heart Sounds in Health and Disease," the author being Dr. Austin Flint, Sen'r. The second essay is by Dr. A. Pallen, upon "Vision, and some of its Anomalies, as revealed by the Ophthalmoscope." Hoping to return to these at a future day, we thus close our notice. P.

The New American Cyclopædia: A popular Dictionary of General Knowledge. Edited by GEORGE RIPLEY and CHARLES A. DANA. Volume V. Chartreuse-Cougar. New York: D. Appleton & Co. pp. 770.

Each volume of this important work, as it makes its appearance, impresses us more and more with its usefulnes, and we are satisfied that the whole will fill a place which has been vacant for years. In the present condition of knowledge, every decade of years will require a new Cyclopædia, or that new and improved editions of the old

should be furnished the reading public. The present Cyclopædia has the advantage of being sufficiently full on the subject of abstract sciences, to give a general idea to the ordinary reader, while it has avoided the prolixity of detail which belongs properly to separate monographs. Our opinion of the work has been confirmed and strengthened by the appearance of this volume, and we believe that every student will find it a convenient book of reference to have on his shelves.

The Cyclopædia contains short sketches of the lives of living celebrities, which is a feature somewhat peculiar. To furnish such sketches, especially of political characters, is a most difficult task. What is to be feared is the exhibition of a partisan spirit in describing the political views of the person whose life is furnished. We have observed a little too much of this in one article on a prominent politician of the present day, and would suggest that, as a general thing, the preparation of articles on subjects about which there are partisan differences should be confided to cool heads, free from all political bias. This suggestion is made because we want this publication to be emphatically, what we hope it shall prove to be, even to the last volume, an *American Cyclopædia.*

We have often wondered how the editors were able to furnish the public a volume every three months—looking upon the herculean labors involved in the preparation of near 800 double-columned pages—but our curiosity has been satisfied by the publication in this volume of the list of contributors. One hundred and seventy-two names of gentlemen prominent as litterateurs or savants are comprised in this list. We notice the following as selected from the medical profession: Drs. Thomas M. Brewer, L. P. Brockett, E. Brown-Séquard, H. Doherty, John W. Francis, C. R. Gilman, Hy. Goadby, Augustus A. Gould, A. A. Hayes, S. Kneeland, Jr., C. Kraitsir, B. W. McCready, J. W. Palmer, E. R. Peaslee, Levi Reuben, N. P. Rice, R. Tomes, W. M. Whitehead, James Wynne, E. L. Youmans, and R. T. Trall.

To draw our notice to a conclusion, we need only repeat, what we believe we have said before in a previous notice, that this is the freshest, clearest, most concise and intelligible, and most useful Handbook that is accessible to the American student. L. H. S.

EDITORIAL AND MISCELLANEOUS.

"*The Dangers of the Physician.*"—This is the title of a chapter in "*The American Citizen,*" by the Rt. Rev. J. H. Hopkins, of Vermont, and we have been tempted to glance over the contents of the same, with the view of seeing what the learned author could find to say on the subject. We have been somewhat surprised at the position he assumes with reference to two notable forms of quackery, belonging to the present age. After having set forth as one of the dangers of the profession—"the liability to confound *facts* with *conjectures*, to assume a vast deal which is not susceptible of proof, and to refuse a reasonable hearing and a fair examination to other facts, as well supported as their own by a respectable amount of evidence, because the *speculative hypothesis* of those who adduce these facts does not agree with their old or favorite theory"—he proceeds to suggest some thoughts with regard to the mode Hydropathy and Homœopathy should be treated by the profession.

He objects to the use of the term *quackery* as applied to Hydropathy, since "this word properly attaches to imposition and deceit; whereas, in the Hydropathic plan, everything is simple, plain, and intelligible." What is the very essence of quackery, but the application of one course of procedure—one plan of treatment to all possible cases of disease, without a recognition of the difference of constitution and temperament in different individuals—of the varying tissues that may be attacked by disease—of an animal system capable of being impressed upon from without in a thousand ways? This so-called system has not been opposed because an illiterate peasant, Priessnitz, has propagated it; but simply because that which constitutes an effectual means of treatment, under *certain* circumstances, is pushed forward as the only proper treatment under *all* possible circumstances; because that which, in its place, is a most reliable aid to the physician, is made to be the only possible means of controlling disease. No enlightened physician has pretended to discard water from his practice; to reject it as a most unreliable agent, simply because Priessnitz, in his ignorance, and his followers, in their blind fanaticism, have misused it. No educated practitioner has hesitated to prescribe bathing, subsequent friction, temperance and exercise. Such are hygienic means that he has been taught to employ, both by text-books and lectures. If *he* neglected them, don't elevate, to the dignified position of a science, a system which rushes into the other extreme, and employs them, and them alone. The proper way is to show the physician his

error—make him understand that all the agencies of nature are to be legitimately employed by him in the treatment of disease. But if we are to take up with a system, which was blindly employed by its originator, still more so by ignorant imitators or cool speculators in novelties, and claim for it simplicity and intelligibility, whereas, nothing like a clear explanation is furnished by it of the supposed *modus operandi*, we may as well give up our reasoning faculties, and blindly follow any routine that is prescribed for us by a successful experimenter.

"Granting that mankind knew the salutary effects of these things (viz., the bath, friction, temperance and exercise) already, yet it is certain that they were never so combined before, as not only to make them a substitute for medicine, but to conquer diseases by their means, which the best physicians had failed to cure. In the power of this combination lay the value of the discovery." Now, in sober truth, this is *too* bad. Come forth, brethren, from your offices, and learn that the agencies, referred to here, were never collectively employed in our profession *until* Priessnitz first caught the happy thought! Ponder over this announcement until all that has been taught you in the years of your pupilage, until all that has been ordered by you for your patients, during long years of faithful practice, shall have faded from memory; and then—hail Priessnitz as the discoverer of an art which goes beyond the teaching of books—"a practical efficiency." Cast all books on Hygiene and Therapeutics in the fire; stultify yourselves by forgetting their contents; and *then* you may believe that the peasant first announced the use of cold water to the world.

"The liability to confound facts with conjectures" *is* a great danger to our profession, but another danger arises from the confounding of conjectures with facts; and in this particular, can we recognize the difference between a medical philosopher and an empiric—that the former carefully separates what *is* conjecture from fact. The empiric does not recognize the difference between a sequence and a consequence. His banner has inscribed upon it in flaunting colors—post hoc *ergo* propter hoc. In case he finds the *post hoc*, it must necessarily be *propter hoc*, and all the world are invited to put themselves in a position where they shall obtain the same result. The medical philosopher is not satisfied with a mere sequitur; it must be a necessary—*a logical sequitur;* and all his study of the Protean character of disease has taught him that no two cases are exactly alike, and hence no two modes of treatment should be precisely the same. The objection to any of the so-called systems of the day, as such, is not that they em-

body truth, but exhibit it through a refractory medium; let us grasp the whole truth. "The *use* of antimony" did *not* result "from the observation of a monk upon its fattening hogs;" its *abuse* resulted in this way. Valentine found that the hogs which fed where the refuse material from his experiments had been thrown, seemed to fatten; accepting the sequence as a consequence, he endeavored to produce such an effect on his brethren, and the result is well known. No better illustration could have been brought forward by the author to set forth the folly of hasty conclusion and the danger of confounding facts with conjectures.

"Far wiser, then—far better, and more just, in my humble opinion, would it have been, if our regular physicians had frankly admitted the facts of Hydropathy." Now, we think a still wiser thing has been done in retaining our hold on that which an effort has been made to take from us, and to present us a new discovery, and the foundation of a new theory.

The author of "The American Citizen" thinks that, with respect to the objections brought against Homœopathy, as regards the doctrine that "the effects of every remedy are increased by the smallness of the quantity, provided it be taken in a state of exceedingly minute division"—that "Hahnemann has not been dealt with fairly;" and proceeds to say that there is nothing absurd, provided that the medicine be in such a state of exceedingly minute division, since it is *then* "*likely to enter the system* by absorption." He proceeds to quote the different actions of mercury, when given in small and large doses—by which he only proves that small doses of this, as well as other agents, may enter the system by absorption, but not that the powerfulness of its action increases with the diminution of the quantity employed. Let us have the so-called "*facts*," adduced in proof of this, brought forth, and let them not be "confounded with conjectures." It is admitted that "Hahnemann may have, perhaps, carried it to an extravagant extreme"—and this is just the peculiarity of Homœo-quackery, as a system, that it *has* pushed the idea of small doses, acting by absorption, to a ridiculous extreme.

Again, we are told that there are "enough of acknowledged facts in the older system, to warrant the principle of Hahnemann"—that like cures like. As illustration, we are reminded that "cathartics are given *to cure* diarrhœa and dysentery;" "emetics are administered in sickness of the stomach;" "blisters are applied to relieve inflammation of the pleura." Is it not singular, that the fact should be overlooked that such treatment is applied to remove causes, of which these are

simply sypmtoms? We are told that "the principle on which medicines act must always be a matter of conjecture, and can only be derived from *facts* proved by actual experiments." Have we not "conjecture" and "facts," then, irrevocably mingled, so that it must be a hopeless task to attempt their separation? This plea of forcing belief in theories, by exhibiting facts as proofs, whether they be probable or not, is one of the most unsound methods of arguing that can be adopted. We don't admit the facts of Signor Blitz or Mr. Haller, simply because our reason assures us that our senses have deceived us. And all the fortunate sequences that might be collected in the history of medicine would not make a system credible, if our judgment were not satisfied as to their being something more than sequences—even consequences.

We have been induced to dwell at some length on the views of this author, because we feel that they are erroneous, and the church position he occupies may give them some show of authority. This object is "to show why the regular faculty should regard their rivals with indulgence, rather than to denounce them with contemptuous severity." The real reason for any denunciation of quack-systems is the error they contain. We are willing to receive truth at the hands of any one, but we cannot league with imposture; nor can we admit its followers to a seat alongside of those who worship at the shrine of truth.

The author concludes the chapter under notice with some appropriate references to the physician's duties, as regards the religious state of his patient. These are apt, and well expressed, and we join with him in the persuasion that "no man can be rightly qualified to heal the diseases of the body, who despises union with the soul."

— Among the new mechanical inventions which have been introduced into the department of ordinary labor, none has excited a more lively interest, or promises to effect a greater amount of good to that industrious, over-worked, and poorly paid class of operatives, known under the general appellation of seamstresses, than the sewing-machine. The commercial advantages of this invention do not properly belong to the province of this Journal, but the hygienic results which are promised from it are such as to lead us to take a deep interest in it, as an eminent promoter of health. The statistics upon which to base any accurate calculations as to its effect upon the health of those engaged in operating upon it, are too meagre to allow us to speak with any certainty upon this point, and we are therefore compelled, in the absence of these facts—the importance of which are too obvious to need any argument to enforce—to reason upon general

inductions; and from these we are inclined to give the sewing-machine a prominent rank as a promoter of health among a proverbially unhealthy class.

The Massachusetts returns of deaths give the following classification of the average age at death, among the females included in the list:

Domestics	43.96
Dressmakers	32.36
Housekeepers	51.15
Milliners	35.53
Nurses	54.31
Operatives	27.69
Seamstresses	41.83
Shoebinders	45.59
Tailoresses	40.63
Teachers	28.70

The aggregate ages of the 2,376 females included in the above list give a general average of 50.39 years to each individual, or about one year less than the average of the male population of Massachusetts, the aggregate in this latter class being 51.34 years to each man.

An examination of this list shows that those engaged in sedentary occupations have a less average duration of life than those whose employment is more active. Thus, housekeepers, domestics and nurses, stand high upon the list, while dressmakers, milliners, operators and teachers, rank low, and tailoresses and seamstresses exhibit a less average of duration of life than either of the active female pursuits. After making due allowance for the different ages of the persons who are engaged in these various pursuits, it is nevertheless true that those who are exclusively engaged in needle-work have a shorter average duration of life than the average among the industrial classes of females, and much shorter than that among the male population.

Indeed, general observation would lead to the same conclusion as that revealed by the Massachusetts returns; for no one at all conversant with this class, can have failed to note the wornout and haggard appearance, which but too surely stamps them as the victims of a low general state of health. Sedentary employment, unremunerative wages, and a confined atmosphere, have each contributed to produce this general result. Now it is on precisely these points that the introduction of the sewing-machine seems to offer great hopes of reform. The operative on one of these machines has a more varied as well as a more active employment. The amount of labor performed is

greatly increased, and the wages much more, than those which the most industrious could hope to gain by the use of the needle unaided by machinery. The space, too, required to operate the machines is greater; and consequently it is impossible for the employer, however much he may desire it, to crowd a large number of work-girls in the same apartment.

Our own personal observations have impressed us with the more elevated standard of health among operators on these machines, than among their fellows, who simply ply the needle with unwearying and painful exertion from early morning until late at night. It is possible that the selection of the females to work these machines may be from a better class, so far as health is concerned, than those usually engaged in sewing, but the uniformity of the result strikes us as a favorable feature. It is to be hoped that those having a number of these machines in their employment, may take such steps as will enable us to speak more positively than it is possible to do from mere casual observation. Statistics are here of the greatest value, and while we leave them to tell their own tale, we may premise, in anticipation of their collection, that we are prepared to expect a less amount of sickness and a lower rate of mortality in this class than is known to exist among needle-women generally.

—M. E. A. Groux has again returned to New York, after having made the tour of the United States. He has visited all of the leading cities in the Union, and has submitted his case to the examination of most of the principal physicians. The tumor seen in the fissure of the sternum has been the subject of inspection and speculation wherever he has been. We have been permitted to examine his album, in which he collects the autographs and the opinions of all those who have critically examined the movements and sounds of his heart, and have been allowed to extract from it such as will complete the history of this case up to the present time. We have already collected in one paper, in a previous number of the Monthly, (Dec., 1858,) the opinions of the leading physiologists of Europe on this interesting case, and we published the Report of the New York Pathological Society in full in the January number of the present year. To these we now add two more, which are the only ones we find in M. Groux's album which merit being recorded as an opinion.

The first is the result of the brilliant experiments of Dr. J. B. Upham, of Boston, alluded to in a former number.

Dr. Upham says: "My object was to demonstrate to the ear, through the agency of electro-magnetism, the facts in the mooted question as

to the synchronism of certain of the motions of the heart and great vessels, displayed in the case of M. Groux; and, in this connection, also, to measure accurately the time in which the heart and pulse are conveyed from the centre of the circulation to points more or less remote.

"The following results appeared, viz.:

"(*a.*) That a minute but distinctly appreciable interval of time elapsed between the impulse of the oval tumor seen in the middle of the sternal fissure and the shock of the heart between the fifth and sixth ribs.

"(*b.*) That a slightly increased interval was manifest between the impulse of the tumor and the beat of the aorta at its arch.

"(*c.*) That a still greater interval was perceptible between the tumor and the radial pulse.

"(*d.*) That the interval between the apex beat and the radial pulse was slightly but appreciably *less* than that between the oval tumor and the radial, and greater than in the case of the first two experiments named.

"All these experiments were minutely recorded by means of a chronograph, delicately adjusted for the purpose, it being found possible by this means to record intervals of time considerably less than the one-hundredth part of a second.

"The calculations of these minute periods of time are withheld till a greater number of experiments shall have placed their accuracy and trustworthiness beyond question.

"The electro-magnetic apparatus on this occasion was under the supervision of Mr. Moses G. Farmer, the eminent electrician, assisted by Messrs. Stearns and Rogers, from the City Telegraph Office. On Saturday, January 8th, these experiments were in the most careful manner repeated, in connection with the delicate apparatus in the Observatory of Cambridge, and verified in every essential particular."

The other is that of Dr. J. DACOSTA, of Philadelphia, who writes:

"The pulsating mass seen through the fissure in the sternum, I believe to be the auricle; it is certainly not the aorta. This seems to be proved from the fact that during a held expiration the fissure fills up, and a mass protrudes, the upper portion of which is clear, partly tympanitic on percussion; the lower (*i. e.*, the one corresponding to the point which was observed to be in motion) is dull. If the position of the parts be normal, is it possible for the aorta to be thus displaced?

"The opinion that this distinctly pulsatory mass is not the ventricle, I base on its peculiar undulatory movement, its position, which hardly

corresponds to the right ventricle, and the entirely different character of sound heard over it and the mass at the lower part of the fissure.

"*Sounds.*—Presuming, then, this to be the auricle, I studied on several occasions, and in different positions, the sound heard over it. It may be described as one sound, whose commencement is different from its close The sound is sometimes buzzing, but most usually of high pitch, and rather metallic sounding. The click at its end is often very marked. It differs entirely in its character from the first sound heard over the right or over the left ventricle, both of which are of much lower pitch. It is more like the second sound, heard higher up over the aorta, but also differs in character from this, being much more ringing and metallic. In estimating whether it be really produced in the auricle, it is necessary to compare it with the valvular sound of the aorta, as the question suggests itself, whether it be not this transmitted. The peculiar click heard at its termination corresponds to the drawing away of the integument from the end of the glass stethoscope, as may be easily proved. A similar sound is heard by placing the stethoscope at other points of the chest, and listening when the thoracic walls recede. These observations were made with M. Groux's glass stethoscope, and repeated with a glass stethoscope placed in Cammann's double stethoscope.

"*Aortic Sounds.*—Two sounds are heard at the aorta. The first, a dull, long sound; the second, sharp and accentuated. If the finger be placed immediately below the stethoscope, two impulses are felt. The first and longest vibration corresponds to the first, or long sound; the second impulse communicated to the finger is short, but decided, and corresponds to the second, distinct, flapping sounds. This double impulse over the aorta seems to me to account for the wavy, irregular motion of the column of fluid over the aorta in the instrument M. Groux employs, and would explain the fact that observations made simultaneously with a stethoscope, and by the application of the hand over different parts of the heart, seemed hardly to correspond with the results obtained by the delicate instrument employed.

"By placing pieces of bone, of gutta percha, etc., in the upper part of the fissure, the aortic sounds, although not as marked, still retained their distinctive character.

"*Effects of Respiration on the Heart.*—In full inspiration, the sound over the auricle disappears entirely, and returns completely in full expiration. The sounds over the left ventricle lessen in inspiration, and both ventricles are turned inward, so that the beat of the heart is perceived somewhat downward, and towards the median line; a fact

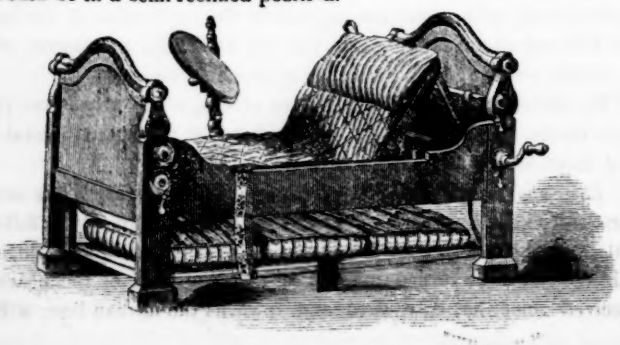
of which I had become fully aware, by observations made prior to seeing M. Groux."

M. Groux expects to return to Europe soon, but proposes, before going, to deliver a public lecture upon his own case, to repeat the numerous experiments made by Dr. Upham and others, and to illustrate them by vivisections. He has already lectured in several of the cities he has visited, and is prepared to give an extremely interesting discourse upon the phenomena witnessed in his person.

The lecture is proposed to be given on the evening of May 10, at the Cooper Institute.

—An elegant, simple, and most useful invention has recently been introduced to the attention of the profession of this city, in the shape of an Invalid's Bedstead. By means of it, a patient unable to move, or who, by reason of some severe injury, serious disease, or recent surgical operation, it is necessary to keep perfectly quiet, can yet have the benefit of renewed bed-clothing without scarcely a motion on his part. A convalescing patient can have his position changed, by the turn of an attendant's hand, to a semi-horizontal position, or even to a sitting position; and by means of a crank, the mattress can be lowered from the patient, aired, or changed; and the natural evacuations can be performed, without fear of soiling the bed, or a needed change in position; the patient, meanwhile, lying on his back, upon a tensely-drawn sacking, in the centre of which there is an opening large enough to permit of the operation. Or, by raising the head, and lowering the foot portion, a chair can be made, the sections of the mattress being placed upon each other for that purpose.

The accompanying cut represents a bedstead to which this invention has been adapted. As seen here, the mattress is lowered from the sacking, and the head of the bed is raised, so that a person occupying it would be in a semi-reclined position.



The soiled sheet is removed gently and slowly, by means of a roller and crank; at the same time a clean one, sewed to the end of the one removed, is drawn on.

To this bedstead an apparatus is also attached, which makes it peculiarly valuable in hospital practice. This is a simple arrangement, to afford a single or double inclined plane.

It has recently been brought before the Academy of Medicine, and referred to the Section on Surgery. It has also, by order of the Secretary of War, been subjected to the examination of a Board of Medical Officers of the Army.

It commends itself, for use both in private families and in hospital practice, on account of its simplicity, its durability, the ease with which it is manipulated, the comfort it affords the patient, and the exertion it spares the attendant.

— Mr. Figg is advocating in the *London Medical Times and Gazette*, "the delivery of the child by turning, as a general rule in labor." His first sentence is, "No proposition is more universally entertained than that reproduction is, as a general law, opposed to the safety of the maternal parent employed in the process." From this we should at once dissent, if the author means what he appears to say. In another place he meets the difficulty, that two athletic men, pulling with all their force, might pull the child's body from off its head, by asserting that the art of procreation is keeping pace with the advancement of science in the nineteenth century. "Our children's necks are more substantial in character than those of our ancestors." Is not this midwifery run mad?

— *Francesco Della Sudda*, Professor in the Ecole de Médecine of Constantinople, and *Pharmacien en chef* of the Ottoman army, has been promoted, by an imperial decree, to the dignity of Pacha, under the title of Faik Pacha, with the official title of Director of the Central Pharmacy of the Armies of the Ottoman Empire. Faik Pacha is a Roman Catholic. The decree, which confers on him, by reason of his loyal services, a dignity reserved for Moslem subjects, up to this date, is a political fact of great importance, which honors no less the government of H. M. Abdul-Medjid, than the intelligent body of pharmaceutists of the Ottoman Empire.

Persulphate of Iron in Epistaxis. By James F. Hibbard, M.D. Richmond, Indiana.

Jan. 6th, 1859, I was called to see J. H., aged 74, who in three hours had bled about sixty ounces from the nose. I used various

remedies, local and constitutional, and after five hours' labor the hæmorrhage stopped. But a little bleeding would take place every few hours for two days, when it started again with some vigor. I then cleared the nostril of all coagula, and after washing it out with two syringefuls of cold water, injected, with a common glass penis syringe, ʒss. of a mixture consisting of solution of persulphate of iron one part, rain-water ten parts. The bleeding ceased at once completely, and did not return. Neither was there any oozing of blood, for the nostril remained open, and breathing through it very easy. The natural secretion of the Schneiderian membrane was also arrested; but it recommenced in twenty-four hours, and continued. The whole amount of blood lost was about one hundred ounces, and nearly all of it within eight hours after the hæmorrhage began. The patient recovered.

The points of this case worthy of notice are: 1st, The hæmorrhage, after resisting all ordinary remedies, was arrested at once upon the application of a dilute solution of the persulphate of iron; 2nd, The application was convenient, and without pain to the patient; 3rd, The nostril was left clear of clots, irritation, or other unpleasant consequence of either the lesion or the medication.

I ascertained by experiment that a solution of the iron salt of the strength I used, when brought into contact with blood in a cup, coagulated it instantly.

The article in the October number of the *Medical Journal of Medical Sciences*, from which you abstracted the notice in the *Lancet and Observer*, details the process for the preparation of the salt. The preparation I used was a solution of the salt as made and used as a ferruginous tonic for many years, by J. T. Plummer, M.D., of this city; and as the process appears to me much more simple than that of M. Monsel, I subjoin it, with Dr. Plummer's approbation, viz.:

℞.—Sulphate of iron, ʒijss.
Nitric acid, ʒiij.
Water, pure, ʒxss. M.

Triturate the salt and the acid together for fifteen minutes, then add the water, and filter through paper.—*Lancet and Observer.*

Detection of Urine in the Canals of Rotterdam.—Haaxman, with a view of detecting urine in the water, evaporated to dryness, in a water-bath, a half litre of water taken from one of the canals. The dry residuum having been treated with absolute alcohol, was abandoned to spontaneous evaporation. A fragment of this residuum being treated with a drop of nitric acid and dried, exhibited, under a suita-

ble objective, a considerable quantity of crystals of nitrate of urea.—*Journ. de Pharm. d'Amers.*

Glycerole of Tar in Eczematous Impetiginous Eruptions.—Gibert, in the Hôpital St. Louis, prepares this article by mixing 30 grammes of glycerine with 2 grammes of purified tar, and then adding while hot 15 grammes of powdered starch. It can be removed by the simple application of water. As a topical application, "it relieves itching, dries up excoriations, absorbs exhalations, and dissipates redness—in fact, it acts as an astringent and resolvent, without producing irritation."

— The *City Press*, a London paper, states that there are in that city 12 hospitals for general purposes; 46 for special purposes; 34 dispensaries, giving relief to 365,956 persons every year. Income £300,000.

— Dr. William C. Rogers, of Green Island, N. Y., is collecting statistics of prolapse of the funis, and we desire to assist him, by requesting any of our readers who may have had cases, or only a single case of this accident, to communicate them to him. The points on which he asks for particularization are: the age of the patient; number of pregnancy; the period of pregnancy, (full term or not;) presentation, complication; state of the funis during labor; state of the maternal organs; duration of labor; means used to preserve the funis; mode of delivery; sex and fate of the child; together with any other remarks that may be deemed of value. Tables have been prepared by him in which these items are specified, and thus a statement of the peculiarities of any case can be easily made. Copies of the table he will be glad to furnish to any who may desire it, if they will send him their address.

— A writer in the *Household Words* gives the following description of the discovery of the powerful anæsthetic properties of chloroform:

To Professor Simpson, of Edinburgh, belongs the distinguished credit of introducing chloroform, which has nearly superseded all other anæsthetics. Possessed with the notion that something better than ether existed in the chemical world, the professor set about deliberately to examine any volatile substance which afforded a promise of revealing the required properties. Various gases and liquids were experimented upon; and at last chloroform—a ponderous liquid which provoked no great expectations, and only known as a chemical curiosity in the laboratory—was brought to the trial. Doctor Simpson, with his two assistants, sat down late one night, after an arduous

day's toil, and when most physicians, as well as patients, were wrapt in sleep, began to inhale various substances which had been collected. A small bottle of chloroform had been raked up out of some obscure corner, and was to take its turn with the rest. Each experimenter provided himself with a tumbler or finger-glass, a portion of each selected fluid was poured into the bottom of it, and the glass was placed over warm water to favor evolution of vapor. Holding the mouth and nostrils over the vessel, these votaries of science courageously explored this *terra incognita* by inhaling one vapor after another. At last each charged his tumbler from the small bottle of chloroform, "when immediately," says Professor Miller, "an unwonted hilarity seized the party; they became bright-eyed and very happy, and conversed with such intelligence, as more than usually charmed other listeners who were not taking part in the proceedings. But suddenly there was a talk of sounds being heard like those of a cotton-mill, louder and louder; a moment more, then all was quiet, and then—crash.

"On awaking, Doctor Simpson's first perception was mental: 'This is far stronger and better than ether,' he said to himself. His second was to note that he was prostrate on the floor, and that his friends were confused and alarmed. Hearing a noise, he turned round, and saw his assistant, Doctor Duncan, beneath a chair, his jaw dropped, his eyes staring, and his head half bent under him; quite unconscious, and snoring in a determined and alarming manner. More noise still, and much motion, and then his eyes overtook Doctor Keith's feet and legs making valorous efforts to overturn the table, or more probably to annihilate everything that was on it.

"All speedily regained their senses, and from that day, or rather from the middle of that night, dates the discovery of the marvelous properties of chloroform."

— The remains of the great John Hunter were discovered in the vaults of the Church of St. Martin's-in-the-Fields, after a two-days' search, by Mr. Frank T. Buckland, Assistant Surgeon, Life Guards. The coffin was in excellent preservation, the inscription clear and distinct. It runs as follows: "John Hunter, Esq. Died Oct. 16, 1793, aged 64." The remains have been removed from their first resting-place, and reinterred in Westminster Abbey, in the presence of a large concourse of medical and scientific men. It is now proposed to erect a statue to Hunter, and a subscription to fulfill that intention has already been opened.

— Several new appointments have been made at Bellevue Hospital by the Board of Governors: Drs. Gurley, T. Meier, A. B. Mott, and Church have been appointed Surgeons, and Drs. J. W. Green and Loomis as physicians.

— A new medical college in connection with Lind University has been organized in Chicago. The course differs somewhat from other colleges, in there being a junior and a senior course. The faculty is not yet entirely made up, but consists at present of the following medical gentlemen: Dr. N. S. Davis, Practice; Dr. Johnson, Physiology; Dr. Andrews, Surgery; Drs. Rutter and Byford, Obstetrics; Dr. Mahla, Chemistry; Dr. Hollister, Descriptive Anatomy.

— The new *St. Luke's Hospital*, situated near Fifth Avenue, on 54th and 55th Streets, has recently opened with a full Board of Medical Officers. This hospital is capable of accommodating 200 patients. The attending physicians are Drs. Clark, Heywood, Thomas and Draper. The attending surgeons, Drs. Buck, Peters, and Bumstead; consulting physicians, Drs. Delafield, Cammann, Ogden, and Metcalf; consulting surgeons, Drs. Parker, Watson, Post, and Eigenbrodt; pathological chemist, Dr. J. C. Dalton, Jr.

— The *Chicago Medical Journal* is now solely under the editorial charge of Dr. David Brainard, Professor of Surgery in Rush Medical College. Drs. Davis and Byford retired with the February number.

— The *Saint Joseph's Journal of Medicine and Surgery* is a bimonthly of 24 to 32 pages, published in St. Joseph, Mo., under the auspices of the Medical Society of that place. The editorial committee consists of Drs. J. H. Crane, D. B. Kuode, and G. C. Catlett. The appearance of the journal is highly creditable, both in manner and matter. We have seen but one number, and shall be pleased if the editors would send us the back numbers of the volume in exchange for those of our own.

— *Tartrate of Iron and Potash in Phagendic Ulcer.*—M. Ricord, of Paris, recommends this salt very highly in certain forms of syphilis. We have used it frequently, with truly surprising results. We now recall to mind a case in which a very large ulcer threatened to destroy the glans penis: the young man was brought very low by exhausting hæmorrhages, and the ulcer was rapidly progressing; in consultation with his attending physician, we advised from 5 to 10 grains tartrate of iron and potash, three times a day, with a strong solution of the same kept constantly applied to the affected part, on lint. The bleeding was soon arrested, and the deep ulcer filled up with won-

derful rapidity. We have used the remedy many times since, and we are always pleased with its effects in similar cases.—*Southern Med. and Surg. Jour.*

Books and Pamphlets Received.

Nature in Disease. Illustrated in various Discourses and Essays, to which are added Miscellaneous Writings, chiefly on Medical Subjects. By Jacob Bigelow, M.D., &c., &c. Second Edition, enlarged. Boston: Phillips, Sampson & Co. 12mo.

Practical Dissections. By Richard M. Hodges, M.D., &c. Cambridge: John Bartlett, 1858.

On Poisons in Relation to Medical Jurisprudence and Medicine. By Alfred Swayne Taylor, M.D., F.R.S., &c. Second Edition, from the second London edition. Philadelphia: Blanchard & Lea, 1859.

A Practical Treatise on the Diseases of Infancy and Childhood. By T. H. Tanner, M.D., F.L.S., &c. Philadelphia: Lindsay & Blakiston, 1858.

Contributions to Operative Surgery and Surgical Pathology. By J. M. Carnochan, Prof. of Surgery in the New York Medical College, &c. With Illustrations drawn from nature. Philadelphia: Lindsay & Blakiston, 1858.

British and Foreign Medico-Chirurgical Review. Jan. 1859. New York: S. S. & W. Wood.

The Half-Yearly Abstract of the Medical Sciences, No. 28, July to December, 1858. Philadelphia: Lindsay & Blakiston.

Braithwaite's Retrospect of Practical Medicine and Surgery. Part 38. New York: W. A. Townsend & Co.

The New American Cyclopædia: A Popular Dictionary of General Knowledge. Edited by George Ripley and Charles A. Dana. Vol. V. Chartreuse-Cougar. New York: D. Appleton & Co., 1859.

The Progress and Spirit of Medical Science; an Anniversary Discourse delivered before the New York Academy of Medicine, Nov. 25, 1858. By E. R. Peaslee, M.D. New York, 1859. (From the author.)

Report of the State of the New York City Hospital and Bloomingdale Asylum, for the year 1858.

The Report of the Resident Physician of the New York City Lunatic Asylum, Blackwell's Island, for the year 1858.

Moral Science and Common Sense: A Lecture introductory to the Session, 1858–9, of the St. Louis Medical College. By M. L. Linton, M.D., Prof., &c. (From the author.)

Journal de la Physiologie de l'Homme et des Animaux, publie sous la direction du Docteur E. Brown-Séquard. Tome Premier, Numero IV. Paris: Chez J. B. Ballière et Fils

On Medical Colleges: An Introductory Lecture to the Course of 1858–9, in the Medical Department of the University of Nashville. By J. Berrien Lindsley, M.D., &c. (From the author.)

An Essay on the Treatment of Cataract. By Mark Stephenson, M.D., &c. (From the author.)

Valedictory Address to the Graduating Class of the Philadelphia College of Medicine, at the Annual Commencement, March 2, 1859. By J. Aitken Meigs, M.D., &c. (From the author.)

A Paper on the Management of the Shoulders in Examination of the Chest; including a New Physical Sign: Read before the New York Academy of Medicine. By J. W. Corson, M.D., &c. (From the author.)

Ceremonies, &c., New York State Inebriate Asylum.

Report on Moral Insanity in its Relations to Medical Jurisprudence. By D. Meredith Reese, M.D., &c. (From the author.)

Report on the Functions of the Cerebellum. By E. Andrews, M.D. (From the author.)

The Hymen: An Essay, by T. Gaillard Thomas, M.D. (From the author.)

Some Account of the Recent Experiments made in connection with the case of M. Groux. By J. B. Upham, M.D. (From the author.)